lume 47 Title-page and Index Issued May, 1969

Review of applied mycology

GENERAL INDEX

Review Articles

rganization for plant pathology in the British Isles: 321–327.
bibliography of lists of plant diseases and fungi. I. Africa: 553–558.
EWITT, W. B., **Viruses and virus diseases of the Grapevine:** 433–455.
HEFFIELD, FRANCES M. L., **Closed quarantine procedures:** 1–8.
TACE-SMITH, R., **Rubus viruses and virus diseases:** 97–109.
VATERSTON, J. M., **Inoculation:** 217–222.

This is basically a host-pathogen index. Entries are analysed under the host; abstract umbers only are given under the pathogen. New records are indicated by an asterisk *.

A Host-Pathogen Index, Vols. 1–40, 1922–1961, was published in 1968 [cf. **47,** 1384].

apirol against *Blumeriella jaapii* on cherry, 3302c.
azira, apple skin browning caused by, 2031b.
baca mosaic virus on *Musa textilis*, transmission of, by vectors, 1577.
— —, resistance of *Musa balbisiana* × *M. textilis* to, 220.
—, see also *Musa textilis*.
bavit, as seed treatment for *Capsicum*, 720.
bies diseases in U.S.S.R., 1314.
—, *Echinodontium tinctorium* on, in Canada and U.S.A., review of, 3245.
— *balsamea, Lirula nervata* on, in Canada, 2562a.
— —, *Phacidium abietis* on, 338.
— —, *Pucciniastrum epilobii* on, in Canada, 2562c.
— *concolor, Echinodontium tinctorium* on, comparison of decay caused by, with *Fomes annosus*, 1330.
— —, *Fomes annosus* on, comparison of susceptibility of, with pine, 1330.
— —, *Furcaspora pinicola* on, in U.S.A., 2861.
— *grandis, Echinodontium tinctorium* on, microorganisms associated with, 2299.
— —, *Hericium abietis* on, 2858.
— —, *Hyalopsora aspidiotus* on, in U.S.A. (Idaho), distribution of, 2860.
— —, *Macrophomina phaseoli* on, effect of soil disinfection on, 355.
— —, *Odontia bicolor* and *Pholiota adiposa* on, 2858.
— —, *Pucciniastrum epilobii* on, in Belgium, 2586a.
— —, *Stereum sanguinolentum* on, 2858.
— *lasiocarpa, Echinodontium tinctorium* on, in Canada, mode of entry of, 2859.
— —, *Epipolaeum abietis* on, in Canada, 2562e.
— —, *Odontia bicolor* on, in Canada, 2859.
— —, *Potebniamyces balsamicola* on, in Canada, 2562f.
— —, *Pucciniastrum goeppertianum* on, differentiation of, from *P. epilobii, Peridermium holwayi* and *P. ornamentale* seasonal manifestations of, 448.
— —, *Stereum sanguinolentum* on, in Canada, mode of entry of, 2859.
— *nobilis, Phytophthora cactorum* on, in England, 2584p.
Abutilon mosaic virus on *Malva parviflora*, 1056; effect of extracts from *A. striatum* on, 774.
?— — — str. on *Phaseolus longipedunculatus*, 1055.
— *striatum*, effect of extracts from, on *A.* mosaic and tobacco mosaic viruses, 774.
— *thompsonii* virus on *Malva parviflora*, 1056.
Acenaphthene, effect of, on fungi, 3714.
Acer, Rhytisma acerinum on, development of ascus in, 1974.
—, *Septomyxa tulasnei* on, in N. America, 643c.
—, *Uncinula bicornis* on, C.M.I. description of, 3731b.
— *pseudoplatanus, Gnomonia platani* on, differentiation of *G. quercina* on oak from, 911; somatic pressure cushion of, 2273.
— *saccharum, Armillaria mellea* on, in U.S.A., 2566.
— — dieback in U.S.A., 1305.
— —, *Fomes igniarius* on, in Canada, inhibition of, by *Hendersonia* and *Stachybotrys atra*, 649; respiratory activity of, 1973.
— —, fungi on, in U.S.A., 2566.
— —, *Pholiota spectabilis* on, in Canada, inhibition of, by *Hendersonia*, 649.
— —, *Polyporus glomeratus* on, in Canada, 649; U.S.A., 2566; inhibition of, by *Hendersonia* and *Stachybotrys atra*, 649; respiratory activity of, 1973.
— —, *Verticillium dahliae* on, invasion of, 2276.
*— *tataricum, Taphrina polyspora* on, in Norway, 1680.
Aceria transmitting wheat streak mosaic virus, 3411.
— *tulipae* in relation to Gramineae virus diseases, 232; to maize kernel red streak disease, 151.
Acetic acid against *Corynebacterium michiganense* and *Xanthomonas vesicatoria* on tomato, 2843.
2-acetyl-3-hydroxyfuran against *Botrytis cinerea* on grapevine, 2796.
**Achras sapota, Botryodiplodia theobromae* and *Pestalotia sapotae* on, in India, 1064.
— —, *Phytophthora palmivora* on, inoculation of economic plants with, 2656.
Acremoniella, electron microscopy of, 1041.
Acrex 50 against powdery mildews, 20.
Acrizane chloride against *Armillaria mellea*, 3696.

Acroconidiella tropaeoli on *Tropaeolum*, 3030.
Acrostalagmus roseus, factors affecting growth of, 1173c.
— — on fungal sclerotia, 1173b.
Actidione against *Erysiphe graminis* on cereals, 1404; plant diseases, 1404; *Pyricularia oryzae*, 2709; *Tilletia caries* on cereals, 1404.
—, ineffective against *Cronartium ribicola* on pine, 1690.
—, inhibition of *Colletotrichum coccodes* by, 3698; *Mycosphaerella ligulicola* by, 3698; pea Wisconsin streak virus by, 2002.
—, tolerance of *Sclerotinia homoeocarpa* on *Agrostis* to, 2745.
—, toxicity of, to rice, 2709.
— in combination, against *Uncinula necator* on grapevine, 584.
Actinomucor elegans in soil, 1427.
— *repens* in soil, 3018.
Actinomycetes, antagonism of, to *Verticillium dahliae* on cotton, 210.
—, biology of, 9a.
—, current knowledge of, monograph on, 3314.
—, effect of sealed and unsealed containers on longevity of, 55.
—, thermophilic, effect of temp. on, 23.
Actinomycin D, effect of, on *Melampsora lini* on flax, 33; on susceptibility of *Nicotiana glutinosa* to tobacco mosaic virus, 1050.
β-acylphenylhydrazine derivatives, effect of, on respiration of *Pyricularia oryzae*, 516.
Acyrthosiphon pisum not transmitting pea false leaf roll virus, 1714.
— —, retention of pea enation mosaic virus by, 370.
— — transmitting Leguminosae viruses, 2318; pea enation mosaic virus, 370, 1346, 2577, 3628; pea leaf roll virus, 3629; pea mosaic virus, 1715; pea viruses, 3264.
Adansonia digitata virus, classified with cacao mottle leaf virus, 1074.
Aechmea fasciata, *Fusarium oxysporum* f.sp. *aechmea* on, control, 1374g.
Aecidium fragiforme on *Agathis dammara*, 3228.
— *garkeanum* on *Hibiscus*, 3456.
Aegilops, *Puccinia coronata*, *P. graminis*, and *P. hordei* on, susceptibility to, 2439.
—, — *recondita* on, in Portugal, 493; susceptibility to, 2439.
—, — *striiformis* on, susceptibility to, 2439.
— *comosa*, *Puccinia striiformis* on, transference of resistance to wheat, 1834.
— *cylindrica*, *Puccinia recondita* on, reservoir for, 1487.
**Aegle marmelos*, *Stenella aegles* on, symptoms of, 2798.
Aerial spraying versus hand spraying, 1279.
Aerobacter aerogenes on cotton, 3456.
Aesculus hippocastanum, see Horse chestnut.
Afzelia bella mycorrhiza in Nigeria, *Inocybe* associated with, 2050.
Agallia constricta, clover wound tumour virus in, electron microscopy of, 74; min. conc. for infecting, 3391.
Agalliopsis novella, clover wound tumour virus in, 2428.
Agaricales, permanently stained slides of, 56.
Agaricus, see Mushroom.
Agathis dammara, *Aecidium fragiforme* on, 3228.
Agave hybrid, *Phytophthora* near *arecae* on, 1902.
— —, — *nicotianae* on, causing zebra disease, 1901, 1902.
[*Agave*] *sisalana*, see Sisal.
Agral, use of, on artichoke, 2354.
— LN in combination against apple tree 2207.
Agricultural chemicals, annual list of approv 1758.
Agrimycin 17 against *Pseudomonas tonell* on oleander, 1588.
— 100 against *Corynebacterium michigan* and *Xanthomonas vesicatoria* on tom 2843.
— — in combination as seed treatment sesame, 593.
Agrisan against *Phytophthora infestans* tomato, 2836.
Agrobacterium, 3-ketolactose test for, 1754.
— *tumefaciens* causing plant tumours, 139
— —, effect of capsicin on growth and v lence of, 1755.
— —, electron microscopy of, 1756.
— —, hosts of, in relation to *Meloidogyne*, 3
— — on apricot, 1381c.
— — on bean, 3320a,b.
— — on cherry, 3158, 3504.
— — on fruit, 3322.
— — on grapevine, 581, 2540, 2541.
— — on raspberry, 2777.
— — on stone fruit, 3157.
— — on tobacco, 1672.
— — on tomato, 1304.
— —, physico-chemical characteristics of, 4
— —, tumours produced by, 3306.
— — str. on *Datura stramonium*, 1391.
Agropyron, *Bromus* mosaic virus on, cau streak mosaic, 1166.
—, *Claviceps purpurea* on, in U.S.S.R., 147
— mosaic virus on *Agropyron repens*, 71, 3
— — — on wheat, 71.
—, *Puccinia agropyri* on, resistance to, 95a.
—, — *graminis* ff.sp. *agropyri-repentis* *secalis* on, in Italy and Yugoslavia, 96b.
—, — *recondita* on, in Portugal, 493.
— streak mosaic in U.S.S.R., *Bromus* mo virus (?) causing, 1166.
—, *Xanthomonas translucens* f.sp. *hordei* 1911.
— *intermedium*, *Pseudomonas setariae* on, 2
— *pectiniforme*, *Puccinia recondita* on, re voir for, 1487.
— *repens*, *Agropyron* mosaic virus on, Germany, hosts of, 71; U.S.A., elect microscopy of, 3475.
— —, *Bromus* mosaic virus on, in U.S.A. U.S.S.R., hosts of, 1167.
— *smithii*, *Phragmidium* ?*mucronatum* on,
— *trichophorum*, *Pseudomonas setariae* 2746.
Agrosan against *Tilletia* on wheat, 1840.
— 5W as seed treatment for *Setaria ita* 2154.
Agrostis, *Sclerotinia homoeocarpa* on, cont 2590d; tolerance of, to fungicides, 2745.
— *palustris*, *Cochliobolus sativus* on, in U.S infection by, 2185.
— —, *Sclerotinia homoeocarpa* on, effect chloroneb on, 2744.
— —, *Ustilago striiformis* on, control, 250
— *pilosula*, *Puccinia coronata* f.sp. *agrostis* *Rhamnus purpureus* alternate host of, 347
— *tenuis*, *Pythium ultimum* on, effect of nutrition on enzyme activity of, 3138.
— —, *Sclerotinia homoeocarpa* on, effect chloroneb on, 2744.

ir, *Alternaria* in, viability of, 2969; over apple orchards, diurnal periodicity in, 2968.
-, — *brassicicola* in, over cabbage fields, 3299g.
-, *Aspergillus* in, over rice fields in India, 1865a.
-, *Cercospora* in, over apple orchards, diurnal periodicity in, 2968.
-, *Cladosporium* in, in Wales, 6; over apple orchards, diurnal periodicity in, 2968; over rice fields in India, 1865a.
-, *Cochliobolus miyabeanus* in, over rice fields in India, 1865a; soil as source of, 1865b.
-, *Coprinus* in, over apple orchards, diurnal periodicity in, 2968.
-, *Curvularia* in, over rice fields in India, 1865a; soil as source of, 1865b.
-, *Fomes annosus* in, in Canada, 3604.
-, fungi in, in Pakistan, 3673; diurnal periodicity in, 2968.
-, *Helminthosporium* in, over rice fields in India, 1865a.
-, *Hypoxylon* in, over apple orchards, diurnal periodicity in, 2968.
-, *Penicillium* in, over rice fields in India, 1865a.
-, *Podosphaera leucotricha* in, over orchards, diurnal periodicity in, 2032o, 2355d.
- pollution causing pine needle blight in U.S.A., 925; plant damage, 780, 3700, 3701; effect of, on plants and soil in U.K., 3309; symposium on, 3700.
-, *Puccinia graminis* in, immigration of uredospores of, 5a, b.
-, *Pyricularia oryzae* in, over rice fields in India, 1865a; soil as source of, 1865b.
-, *Sordaria* and *Sporobolomyces* in, over apple orchards, diurnal periodicity in, 2968.
- spora in Wales, 6; detection and transport of, 5a, b; viability of, 2969.
-, *Trichoconis padwickii* and *Ustilaginoidea virens* in, over rice fields in India, 1865a; soil as source of, 1865b.
ircraft for detecting and locating crop diseases, 392c, d.
- for spraying, 392a, b, 417, 597c, 625, 919c, 920, 1258, 1279, 2934.
lar, effect of, on apple physiological disorders, 1607.
laun in combination against *Peronospora destructor* on onion, 965.
lbisal against cyclamen root rot, 3133.
lbizia julibrissin, *Fusarium oxysporum* f.sp. *perniciosum* on, in U.S.A., 1681.
- *stipulata*, (?)*Uredo* on, control and effect of, 621a.
Albugo candida on cauliflower, 2359a.
- — on horse radish, 941.
- — on radish, 2310, 2311, 2898.
- *tragopogonis* on sunflower, 1222.
lder (*Alnus*) root nodule endophytes, survival of, 3348.
ldrex T as seed treatment for groundnut, 2587c.
lfalfa (*Medicago sativa*) mosaic virus, components of, 3142.
- — — on bean, 2503.
- — — on *Capsicum*, 1744e.
- — — on *Cicer arietinum*, 3262, 3280.
- — — on lupin, 2503.
- — — on pea, 3626.
- — — on *Tephrosia vogelii*, 3054.
- — — on *Vernonia anthelmintica*, 3054.
- — —, see also Lucerne mosaic virus.
Algae and fungi, book on, 2038.
Alkyl-dimethylbenzyl ammonium chloride, effect of, on *Pseudomonas syringae* on pear, 2757.
N-alkyl-dithiocarbamates, fungitoxicity and phytotoxicity of, 978c.
o-alkyl-*o*-3-methyl-nitrophenylthiophosphate against plant diseases, 1397.
Alkylphenols, fungicidal action of, 2986.
Allisan against *Botrytis cinerea* on grapevine, 3173.
Allium extracts, effect of, on germination of sclerotia of *Sclerotium cepivorum*, 3648.
— *cepa*, see Onion.
— *porrum*, see Leek.
— *sativum*, see Garlic.
— *schoenoprasum*, see Chives.
Almond (*Prunus amygdalus*), *Armillaria mellea* on, in Italy, 2215.
— diseases in Italy, review of literature on, 2770.
—, *Fusicoccum amygdali* on, in Italy, control, 854, 2770; factors affecting, 3500a; spread of, 3500a; var. react. to, 3500b.
—, *Gloeosporium amygdalinum* on, in Tunisia, 1924; morphology and symptoms of, 855.
— mosaic virus on almond in Italy, 2769.
—, *Phyllactinia corylea* on, in Kashmir, 2759.
—, *Polystigma rubrum* on, in U.S.S.R., 576.
—, *Rosellinia necatrix* on, in Italy, 2215.
—, *Sclerotinia laxa* on, in Italy, 2770.
—, *Stigmina carpophila* on, in Kashmir, 2759; U.S.S.R., 1197.
—, *Taphrina deformans* on, in Italy, 2770; Kashmir, 2759.
—, *Tranzschelia discolor* on, in Kashmir, 2759.
Alnus, see Alder.
Alopecurus pratensis, *Claviceps purpurea* on, 1170.
— —, *Helminthosporium* on, in Germany (E.), 2743.
— —, *Mastigosporium album* on, in Belgium, 2586a.
— —, *Pestalozzina soraueriana* on, in Germany (E.), 2743.
Alsike, see Clover.
Alternaria brassicae, nutritional requirements of, 2997.
— — on *Crambe juncea*, 2437.
— — on Cruciferae, 3030.
— — on *Sinapis alba*, 940.
— *brassicicola* in air over cabbage fields, 3299g.
— —, nutritional requirements of, 2997.
— — on cabbage, 3299h.
— — on Cruciferae, 3030.
— *capsici-annui* on *Capsicum*, 720, 1995.
— *chrysanthemi* on *Chrysanthemum*, 3030.
— *citri* on citrus, 2717, 2718.
— — on orange, 195, 2032l.
— *cucumerina* on cucumber, 397j.
— — on vegetable marrow, 2350.
— *cuscutacidae* on dodder, 3046.
— *dauci*, interaction of near-UV light and temp. on sporulation of, 1017.
— — on carrot, 3612, *3066.
— *dianthi* on carnation, 3464.
— *japonica* on Japanese radish, 1340.
— *kikuchiana* on pear, 1772.
— *longipes* on tobacco, 399b, 885, 2034b.
— *macrospora* on cotton, 1143, 2587d.
— *mali* on apple, 2520, *3060.
— *passiflorae* on passion fruit, 2c.
— *porri* on *Capsicum* and eggplant, 3069.
— — on leek, 85.

[*Alternaria porri*] on onion, see Onion.
— — on tomato, 3069.
— *raphani*, nutritional requirements of, 2997.
— *solani*, effect of ozone on conidiophores and conidia of, 2610; of UV light on sporulation of, 57.
— —, inhibition of, by tobacco mosaic virus-infected sap, 3386.
— — on potato, see Potato.
— — on tomato, see Tomato.
— *tenuis*, associated with *A. triticina* on wheat, 2128; with cotton boll rot, 3122.
— —, effect of C sources on production of chlorosis-inducing agent by, 3721; of makrolin on, 2983; of S–3 on, 2982.
— —, inhibition of, by arasan and thiram, 741; by tobacco mosaic virus-infected sap, 3385.
— — on *Antirrhinum*, 2733.
— — on beet, 1344, 2903.
— — on *Capsicum*, 1370.
— — on *Chrysanthemum viscidi-hirtum*, 2437.
*— — on *Cyamopsis psoraloides*, 3639.
— — on *Hibiscus esculentus*, 2437.
— — on lucerne seed, 1176.
— — on *Phaseolus aureus*, 3639.
*— — on poplar, 2414.
— — on potato, 297, 2812.
— — on *Saussurea candicans*, 2437.
— — on *Sinapis alba*, 940.
— — on soybean, 3639.
— — on tobacco, 3565.
— — on tomato, 1294, 3218, 3342.
— — on wheat, 121, 3087, 3306.
— —, primary luminescence of, 460.
*— *tenuissima* on *Cyamopsis psoraloides*, 1732.
— *tomato*, interaction of near-UV light and temp. on sporulation of, 1017.
— *triticina* on wheat, 122, 793, 2128.
Aluminium, effect of, on Barakovo-black spot on tobacco, 1673.
— chloride, inhibition of tobacco mosaic virus on *Nicotiana glutinosa* by, 1801.
— foil, effect of, on *Chrysanthemum* virus B and tomato aspermy virus on *Chrysanthemum*, 1153; lettuce mosaic virus on lettuce, 1360; vectors transmitting turnip yellows virus, 395g.
Alvit 55, see Dieldrin.
Amanita, inhibition of tobacco mosaic virus by extracts from, 3204.
Amaranthaceae, passion fruit woodiness virus can infect, 271.
Amaranthus caudatus, *Iris* mosaic virus on, 2183.
— *tricolor*, *Alternaria* on, inhibition of, by leaf extracts, 2177.
Amaryllis, *Hippeastrum* mosaic virus on, in Japan, 540.
— *vittata*, *Hippeastrum* streak virus on, in Papua and New Guinea, similarity of symptoms of, to tomato spotted wilt virus and transmission of, mechanically, 2495.
Amelanchier alnifolia, *Apiosporina collinsii* on, causing witches' broom, 764.
— *canadensis*, apple chlorotic leaf spot virus can infect, 1601.
Ametryne, effect of, on maize dwarf mosaic virus on maize, 3093.
2-aminobutane against *Botrytis cinerea* on carnation, 1151.
—, toxicity of, to carnation, 1151.
Aminotriazole in combination, effect of, on soil micro-organisms, 2075.
Ammonia as timber preservative, 1334.
Ammonium molybdate as seed treatment maize, 1520.
— —, inhibition of tobacco mosaic virus *Nicotiana glutinosa* by, 1801.
— polysulphide, toxicity of, to cucumb 2347.
— sulphate against *Corticium fuciforme* turf, 1592.
Amo-1618 against phosphorus toxicity in s bean, 2578.
—, inhibition of *Bacillus subtilis* by, 2578.
Amomum subulatum, greater cardamom mos streak virus on, detection of, 2106.
**Amphisphaeria pyrina* on pear, 86.
1-s-n-amylisothiouronium N:N-diethyldith carbamates, fungitoxicity of, 2041.
**Amyna octo*, *Beauveria* sp. on, in India, 13
Anabasin, effect of, on content and compos of proteins of *Fusarium oxysporum* f. *vasinfectum* and *Verticillium dahliae*, 10 on N metabolism in *F. o.* f.sp. *vasinfe* and *V. dahliae*, 1012; on pectinase acti and respiration of *V. dahliae*, 1014.
Anagallis arvensis, antifungal compounds fr 744.
Ananas comosus, see Pineapple.
Andrector arcuatus and *A. ruficornis* trans ting cowpea mosaic virus, 2010.
Anemone, *Peronospora* on, control, 3127.
Anethum graveolens, see Dill.
Annona reticulata, see Custard apple.
*— *squamosa*, *Cylindrocladium quinquesep tum* on, in Brazil, *Calonectria quinquesep* perfect state of, 765.
— —, *Pestalotia bicolor* on, in India, sympto of, 1629.
— —, *Phytophthora nicotianae* var. *parasi* on, inoculation of economic plants w 2656.
Annotated list of seed-borne diseases, sec edition, 3058.
Anopheles gambiae, *Coelomomyces indicus* in U.S.A., 3685b.
— *quadrimaculatus*, *Coelomomyces puncto* on, in U.S.A., ecology of, 3685a.
Antennopsis gayi on *Isoptera*, 15.
Anthostomaceae on fruit, 1598.
Anthracene oil, toxicity of, to apple, 3302a
Anthriscus yellows virus on chervil and c ander, 3301l.
— *cerefolium*, see Chervil.
Antiaris africana, blue stain fungi and *Bot diplodia theobromae* on, 645.
Antibiotics, against plant diseases, 393c, 14 *Pyricularia oryzae*, 1113y, z.
—, biochemical bases of mechanism of act of, 1403.
—, biosynthesis of, Vol. 1, 995.
—, effect of oils as additives to, 996.
—, production of, by Polyporaceae, 3337.
—, review of, in plant pathology, 742.
Antimucin WBR as seed treatment for p 3595b.
**Antirrhinum*, *Alternaria tenuis* on, in G Britain, symptoms of, 2733.
—, *Cercospora antirrhini* on, 1149.
—, cherry chlorotic-necrotic ring spot virus infect, 255.
—, citrus variegation virus on, storage of, 2
—, *Puccinia antirrhini* on, in U.S.A., w spread of, 3460.
—, *Verticillium* on, susceptibility to, 478.

ntirrhinum] *majus*, *Erysiphe cichoracearum* and *Peronospora antirrhini* on, in Switzerland, 1809.
—, *Puccinia antirrhini* on, in U.S.A., biology of, 2178; factors affecting growth of, 1581.
ıtracol against *Botrytis cinerea* on grapevine, 2791; *Mycosphaerella musicola*, 2220; *Peronospora destructor* on onion, 709; *P. tabacina*, 311, 1283, 2257; *Plasmopara viticola*, 2225, 2791; *Pseudopeziza tracheiphila*, 2225; *Stemphylium botryosum* f.sp. *lycopersici* on tomato, 3217.
, properties of residues and safety intervals of, 2380.
versus maneb, 2220.
in combination against *Mycosphaerella musicola*, 2220.
hanomyces cochlioides in soil, 440, 2902.
—, morphology of zoospores of, 2085.
— on barley residues, 440.
— on beet, 440, 1344.
euteiches in soil, 1427.
— on pansy, 1746d.
— on pea, see Pea.
helenchoides bicaudatus parasitizing *Cytosporina acharii* on poplar, 1393.
composticola, fungal hosts of, 2077.
helenchus avenae, effect of, on pine mycorrhiza, 2603; root rotting fungi, 2076; interaction of nematode trapping fungi and, 3029.
phids, fungi on, 3240.
not transmitting papaw mosaic virus, 2223.
transmitting alfalfa mosaic virus, 2503; barley yellow dwarf virus, 782; bean common mosaic virus, 3305h; beet yellows virus, 1706, 1707, 2900; cowpea virus, 1450; lupin mosaic virus, 2503; maize dwarf mosaic virus, 147; papaw (distortion) ring spot virus, 2223; parsnip yellow fleck virus, 3301l; pea mosaic virus, stem browning str., 2904; plum pox virus, 2761a.
his craccivora transmitting *Astragalus* dwarf virus, 1712; bean yellow mosaic virus, 1460, 3305h; cucumber mosaic virus str., 721; groundnut green rosette virus, 3283; groundnut rosette virus, 704, 960; groundnut vein-banding virus, 706; pea mosaic virus, 2001; *Robinia* mosaic virus, 2568, 3589.
euonymi transmitting *Euonymus europaeus* virus, 3396.
fabae transmitting bean yellow mosaic virus, 1460; beet yellows virus, 2357a; Leguminosae viruses, 2318.
gossypii transmitting citrus tristeza virus, 1551, 3113; cucumber mosaic virus, 721, 1745i; groundnut rosette virus, 960; passion fruit woodiness virus, 270; potato viruses, 2235.
medicaginis transmitting Leguminosae viruses, 2318.
nasturtii transmitting potato viruses, 2235.
pomi as vector of *Erwinia amylovora* on apple, 566.
iosporina collinsii on *Amelanchier alnifolia*, 764.
is mellifera, *Ascosphaera apis* on, in U.S.A., 2376; factors affecting, 737b.
ium graveolens, see Celery.
lanobacter populi on poplar, see Poplar.
pparatus [see also Technique], for automatic sizing of mould spores, 2090; collecting soil cores, 2409; controlling crop diseases, manual on, 3327; detecting air spora, 5a, b; cotton wilt, 1136; *Verticillium* on sunflower, 1136; distributing soil fumigants, 2356j; examining mycological specimens, 1041; forecasting *Phytophthora infestans* on potato, 2809; freeze-drying fungi, 2092; heating glasshouse soils, 719; inoculating cereal leaves with *Puccinia coronata*, 2440; potato leaves with *Phytophthora infestans*, 296; isolating epiphytic microflora, 2371; measuring air spora, 5a, b; microscopic examination of fungi growing under defined conditions, 2089; preparing fresh sections of plant tissue, 459; shaking microbial cultures at high controlled temps., 458; sterilizing soil, 3017a; testing diseased seedlings in soil, 2097; time-lapse photomicrography of fungi, 3043; trapping *Erysiphe graminis* in the upper air, 138; trapping *Puccinia*, 3405.
Apple (*Malus pumila*), *Alternaria* on, control, 1377m.
*—, — *mali* on, in India, 3060; cytological study of, 2520.
— bitter pit in N.Z., 1190; Vict., 2522; control, 253, 1190, 1608, 2207, 2522; factors affecting, 1190.
— blotch, virus aetiology of, 1180.
—, *Botrytis* on, control, 1377m.
— bruising during storage, 850.
— chat fruit virus on apple, apple small fruit virus ?related to, 2355f; distinction between witches' broom virus and, 1e.
— chlorotic leaf spot virus on apple, 2194; in Netherlands, 1600; U.S.S.R., 558; elimination of, 2519; new disease in Czechoslovakia resembling, 1177; study on, 1601; transmission of, by sap, 2193; to *Amelanchier canadensis* and *Crataegus*, 1601; herbaceous plants, 2519.
— — — — — — on cherry, 572.
— — — — — — on *Malus*, 395k.
— — — — — — on peach, 2519.
— — — — — — +apple latent viruses on *Malus*, 395k.
—, copper deficiency in, in U.S.S.R., causing wilting, 2521.
— corking disorder, mineral element gradients in, 1605.
—, *Cryptocoryneum lignicola* on, in U.S.S.R., 1179.
—, *Cytospora capitata* and *C. personata* on, in U.S.S.R., 565; investigation of resistance to, 3153.
—, *Diaporthe perniciosa* on, 3151.
— disease in Czechoslovakia, resemblance of, to apple viruses and transmission of, by seed and sap, 1177.
—, effect of fluorine on, 248.
—, *Erwinia amylovora* on, in England, 1604; Poland, 1919; control, 252, 2751; eradication of, 1919; factors affecting efficacy of *Aphis pomi* as vector of, 566; symptoms of and var. react. to, 1604.
—, factors affecting spray deposits on, 1374q.
— foliar vein flecking, virus aetiology of, 1180.
— frost damage, *Pseudomonas* associated with, 2206.
— fruit russeting, virus aetiology of, 1180.
—, fungi on, list and review of, 247.
—, *Fusarium* on, control, 1377m.
—, *Glomerella cingulata* on, in Norway, 1603; method for predicting, 1073; production of diphenol oxidase by, 3007.

[Apple] green crinkle virus on apple, comparison of healthy and infected fruit of, 3145.
— — mottle virus, new disease in Czechoslovakia resembling, 1177.
—, *Griphosphaeria corticola* on, in Norway, 1603.
—, *Gymnosporangium juniperi-virginianae* on, periodicity in aeciospore release in, 2203.
—, *Hypocrea rufa* on, in Norway, 1603.
— internal browning, effect of alar on, 1607.
—, iron deficiency in, control, 567.
*—, *Karstenula guttulata* on, in U.S.S.R., 86.
— latent virus on apple, 395j; properties, purification and serology of, 3487; tentatively designated B–38, 3487.
— — — on bean and *Chenopodium quinoa*, 3487.
— — — on peach and *Prunus*, 2032p.
— — viruses+chlorotic leaf spot virus on *Malus*, 395k.
— mineral disorders in U.S.S.R., causing wilting, 2521.
— mosaic virus on apple in U.S.S.R., 558; control, 1178; technique for obtaining rootstocks free from, 249.
— — —, rose mosaic virus identical with, 2651.
—, *Mucor* on, control, 1377m.
—, *Naemospora* on, investigation of resistance to, 3153.
— necroses, nonfungal origin of, 394k.
—, *Nectria cinnabarina* on, in Germany, 1181.
—, — *galligena* on, control, 1186, 2200, 2205, 3302a; importance of time of spraying and wound treatment, 2031d; invasion of, 1186.
—, non-accumulation of organic Hg sprays on fruit of, 2032n.
*—, *Peltosphaeria pustulans* on, in U.S.S.R., 86.
—, *Penicillium* on, control, 1377m.
—, — *expansum* on, effect of mineral ions on infection by, 1188.
—, *Pestalotia truncata* on, in Norway, 1603.
—, *Pezicula* on, control, 1375m, 2204; effect of, on yield, 1375m; harvest residues of dichlofluanid on, 2204; losses from, during storage, 850.
—, — *alba* on, 1187; in Norway, 1603; control, 1186, 1375l; effect of mineral ions on infection by, 1188; invasion of, 1186; mycelial growth of, 2031b.
—, — *malicorticis* on, in Norway, 1603; control, 1185, 1186, 1375l, 2205; germination of conidia of, 2031b; invasion of, 1186; mycelial growth of, 2031b; trials of antisporulants against, 564.
*—, *Phialophora malorum* on, in U.S.S.R., 3152.
—, *Physalospora obtusa* on, in U.S.S.R., 1917; source of infection for, 2749.
— physiological disorders, effect of alar on, 1606.
—, *Phytophthora cactorum* on, 1183; var. react. to, 1602.
—, — *nicotianae* var. *parasitica* on, cultural and pathogenic variation in, 2657.
— platycarpa dwarf virus on apple, 2194.
*—, *Pleomassaria mali* on, in U.S.S.R., 86.
—, *Pleospora herbarum* on, control, 2752.
—, *Podosphaera leucotricha* on, in Armenian S.S.R., 1182; U.S.S.R., 251, 2192; biology of, 2192, 2748; C.M.I. description of, 1035b; control, 20, 1182, 1375k, 1401, 1918, 2192, 2198, 2199, 2748, 3692, 3693; factors affecting, 251, 252, 1918; incidence of, 2192.
[Apple, *Podosphaera leucotricha*] on, *Cil nobolus cesatii* parasitizing, 563.
— proliferation virus on apple, symptoms 1178.
—, *Pseudolachnea elegans* on, in U.S.S.R., 1
— red lenticel disease, geographical distri tion of, (?) not caused by fungi, 1189.
— replant disease, control, 1599.
—, *Rhizoctonia* on, control, 1377m.
— ring pattern, virus aetiology of, 1180.
— — spot virus, new disease in Czechoslov resembling, 1177.
— root rot, 1183.
—, *Rosellinia necatrix* on, inhibition o aureofungin, 3154.
— rosette in U.S.S.R., due to virus and not deficiency, 5650.
— 'rough bark disease', non-transmissio by grafting, 3155.
— — skin disease in Europe, 2193.
— rubbery wood virus on apple in Aust latent infection and spread of, 559; tech for obtaining rootstocks free from, 249.
— russet ring disease in England, viruses c ing, 2193.
— russeting, avoidance of, 2753; cause 393e; during storage, 850.
*— scaly bark virus on apple in Czechoslova 1177.
—, *Sclerotinia fructicola* on, factors affec sporulation of, 2201.
—, — *fructigena* on, antifungal compound fruit of, 2202; losses from during stora 850; pectin methyl-*trans* eliminase in rot by, 3149.
—, — *mali* on, macroconidial formation 3150.
— skin browning, fungicides causing, 2031
— small fruit virus ? related to apple c fruit virus, 2355f.
— Spy decline virus on apple, 2194; elimina of, 2519.
— — epinasty virus on apple, 2194; study 1601.
— star crack disease in England, viruses c ing, 2193.
— stem pitting virus on apple, 2194; elim tion of, 2519; study on, 1601.
—, *Stemphylium consortiale* on, control, 2
— storage disorders, effect of controlled atm pheres on, 1005, 1605; review of, 2754.
— — scald, effect of alar on, 1607.
—, toxicity of dithiocarbamate to, 393e.
— tree pit control, 2207.
—, *Trichoseptoria fructigena* on, control, 2
—, *Trichothecium* on, control, 1377m.
—, *Venturia inaequalis* on, in Asia, Germany (E.), 2029; N. Ireland, 13 Poland, 2956; U.S.S.R., 561, 3146; con 4a, 250, 396, 397k, 1375k, n, 1396, 1 1398, 2197, 2198, 2204, 3490, 3491, 3 effect of urea on, 2195, 2355c; factors af ing, 3146, 3490; factors affecting forma of ascospores of, 2031a; forecasting of, 1808, 3489; genetics of, 3488; harvest dues of dichlofluanid on, 2204; incidence 2029; incubation period in relation to te 2196; inhibition of CO_2 fixation and prc synthesis in leaves of, by, 3148; polyphe in relation to resistance to, 3666e; report 2956; routine and post-infection sp against, 250; sources of infection for, 23 spore dispersal of, 3146; spray warning

916; susceptibility to, 3147; var. react. to, 149, 3147.
ople], *Verticillium* on, 478.
— *alboatrum* on, 2750; factors affecting, 184.
virus diseases, introduction of virus-free vars. nto N.Z., 2191; testing for, 246.
— on *Chenopodium amaranticolor* and *C. quinoa*, 469.
water core, effect of alar on, 1607.
witches' broom virus on apple, distinction between chat fruit virus and, 1e; indicators for, 2194.
ricot (*Prunus armeniaca*), *Agrobacterium tumefaciens* on, in Venezuela, 1381c.
'apoplexy' in Yugoslavia, 1204; study on wood tissue of, 1205.
, fungi on, list and review of, 247.
, *Gnomonia erythrostoma* on, in Yugoslavia, inhibition of, by *Trichothecium roseum*, 1619.
, peach mosaic+apricot ring pox viruses on, no synergism in, 853.
, — yellow bud mosaic virus on, transmission of, by vectors, 571.
, plum pox virus can infect, 1196.
, — — — on, in *Greece, 3059a; Switzerland, 1922, 2761b; control, 1922; symptoms of, 2761b, 3059a.
, Polyporaceae on, not associated with premature dieback, 1205.
, prune dwarf virus on, causing gummosis, 1618.
, *Rhizopus stolonifer* on, 3694.
ring pox virus on apricot in U.S.A., comparison of plum pox virus with, 2210a; var. react. to, 401c.
— — — +peach mosaic viruses on apricot, no synergism in, 853.
, *Sclerotinia laxa* on, var. react. to, 1924.
stem pitting, var. react. to, 2764.
, *Venturia cerasi* on, in Rumania, 577.
virus diseases, testing for, 246.
xylem aberration, transmission of, by budding, to *Prunus virginiana* var. *demissa*, 851.
rabis mosaic virus in Netherlands, 1059; effect of blue light on, 2357f; hosts of, 3508; non-infection of raspberry by, 3508; transmission of, by nematodes, 1059, 1060; seed, 3508; vectors, 69.
— — on celery, 3299d.
— — on cucumber, 1193.
— — on grapevine, 583b.
— — on horse-radish, 1704.
— — on lettuce, 712.
— — on *Nicotiana clevelandii*, 2641.
— — on rhubarb, 3294.
— — on strawberry, 859.
hirsuta, cauliflower mosaic virus on, 2308.
pterosperma, *Septoria arabidis* on, in India, 3623.
achis hypogaea, see Groundnut.
asan against *Pythium ultimum* on parsley, 714.
as seed treatment for sorghum, 3098.
, inhibition of *Alternaria tenuis* by, 741.
42–S as seed treatment for, 1546.
75 as seed treatment for *Cicer arietinum*, 3281.
—, resistance of *Pyricularia oryzae* to, 3105.
raucaria araucana, *Caeoma sanctae-crucis* on, in Argentina, alternate host of, 1981.
cunninghamii, *Botryodiplodia theobromae* on, in Malaysia, ?synonymous with *Diplodia natalensis*, 1441.
aucariaceae, *Aecidium* and *Caeoma* on, 2302.
Arbutin, metabolism of, by pear fungi, 2393.
Arcangeliella asterosperma on oak, forming mycorrhiza, 3710.
Arceuthobium americanum on pine and spruce, *Glomerella cingulata* parasitizing, 337.
Arctium lappa, *Erysiphe cichoracearum* on, overwintering of cleistocarps of, 982.
Areca palm (*Areca catechu*) yellow leaf virus on areca palm, 1640.
Aretan against *Leptosphaeria salvinii* on rice, 3336.
—, inhibition of *Trichometasphaeria turcica* on maize by, 508.
Armillaria mellea control, 3696.
— —, effect of ethanol on, 1773, 1774, 3722.
— — in soil, 2072, 3019, 3020.
— —, metabolism and nutrition of, in relation to growth and rhizomorph formation, 2394.
— — on *Acer saccharum*, 2566.
— — on almond, 2215.
— — on carnation, 2734.
— — on citrus, 1886.
— — on Coniferae, 1315.
— — on *Liriodendron tulipifera*, 1976.
*— — on *Macadamia*, 2588a.
— — on oil palm, 595.
— — on pine, 90, 2958a.
— — on spruce, 2882b.
— — on trees, 2564.
Armoracia rusticana, see Horse-radish.
Arrhenatherum elatius and *A. erianthum*, *Puccinia coronata* f.sp. *avenae* on, resistance to, 2512.
— *splendens*, *Puccinia recondita* on, reservoir for, 1487.
Arthrobotrys arthrobotryoides, interaction of, with soil micro-organisms, 441.
— — on cucumber, 2581.
— *cladodes* var. *macroides*, interaction of, with soil micro-organisms, 441.
— *conoides* in soil, 3028.
— *musiformis* and *A. oligospora*, interaction of, with soil micro-organisms, 441.
Artichoke (*Cynara scolymus*) atrophy, control and factors affecting, 2354.
— latent virus, effect of supplements on infectivity of, 2102.
— mottled crinkle virus on artichoke, particles of, 3296, 3397.
*—, *Mycosphaerella ligulicola* on, 1154.
— *Verticillium dahliae* on, in France, hosts of, 3297.
Artocarpus communis, see Breadfruit.
Arylhydrazono-isoxazolones, fungicidal activity of, 3692.
2-arylimino-3-aryl-4-thiazolidones, fungicidal activity of, 3691.
1-arylthiosemicarbazides, fungicidal activity of, 1376f.
Ascochyta aquilegiae on Ranunculaceae, 539.
— *brachypodii* on *Phalaris arundinacea*, 2743.
— *cannae* on *Canna*, 2732.
— *chrysanthemi* on *Chrysanthemum*, 24.
— *delphinii* on *Calendula*, 2732.
— *desmazieri* on *Lolium multiflorum*, 1168a.
*— *fabae* on broad bean, 730c, 1595.
— *fagopyri*, physiology of, 438.
*— *gossypii* on cotton, 2a.
— *hortorum* on tomato, 1374d.
— *imperfecta*, see *Phoma herbarum* var. *medicaginis*.
— *laurina* on *Laurus nobilis*, 2501.
— *lycopersici*, synonymy of, 1303.

[*Ascochyta*] *phaseolorum* on *Lablab niger*, 2032b.
— —, physiology of, 438.
— *pinodella* on pea, 1721, 2320.
— *pinodes*, see *Mycosphaerella pinodes*.
— *pisi* on pea, 24, 2320.
— —, physiology of, 438
— *rabiei* on *Cicer arietinum*, see *Cicer arietinum*.
— —, physiology of, 438
— *solani-tuberosi*, physiology of, 438.
— *spinaciae* on spinach, 3261.
— *trifolii*, physiology of, 438.
Ascomycetes on timber, 3247.
Ascosphaera apis on bees, 737b, *2376.
Ascu as timber preservative, 678.
Ash (*Fraxinus*), *Colletotrichum dematium* on, biology, morphology and transmission of, 325.
— dieback ?induced by *Cytophoma pruinosa* and *Fusicoccum*, 3578.
—, *Fomes ellisianus* and *F. fraxinophilus* on, in N. America, cultural study on, 647.
*—, *Fusicladium fraxini* on, in Scotland, 3219.
—, *Macrophoma fraxini*, *Phomopsis samararum*, *Phyllosticta fraxini*, and *Pleospora herbarum* on, biology, morphology, and transmission of, 325.
— yellows-type virus on ash in U.S.A., symptoms and transmission of, by dodder, 2590i.
Asparagus, fungi on, 1358.
—, *Fusarium oxysporum* on, in N.S.W., 2032h.
—, — — f.sp. *asparagi* on, in Netherlands, causing 'foot disease', 1a.
—, *Gibberella fujikuroi* var. *subglutinans* on, in N.S.W., 2032h.
—, tobacco mosaic virus str. Y–TAMV on, 3385.
—, *Xanthomonas* on, pathogenicity to, 1358.
Aspen (*Populus* spp.) [see also Poplar] canker in U.S.A., *Ceratocystis* spp. associated with, 2271a.
—, *Ceratocystis populina* on, in U.S.A., description of, 1687.
*—, — *tremulo-aurea* on, in Europe, 646.
—, *Diplodia tumefaciens* on, in Canada, 2562d.
—, *Fomes igniarius* on, nomenclature of, 914.
*—, — *subroseus* on, in Canada, 2562f.
—, — *tremulae* on, in U.S.S.R., factors affecting resistance to, 3226; gas conditions in trunks in relation to, 3586; nomenclature of, 914; resistance to, 1688.
—, fungi on, inhibition of *Fomes tremulae* by, 2279.
—, *Godronia fuliginosa* on, 3588.
—, *Hypoxylon pruinatum* on, in Canada, 643d; development of, 3587; dissemination of ascospores of, 659; severity of, 2852.
— mycorrhiza in U.S.S.R., 1001.
—, *Nectria galligena* on, establishment and penetration of, 1978.
—, *Venturia tremulae* on, biology and overwintering of, 331.
Aspergillic acid, inhibition of groundnut by, 2015.
Aspergillus candidus in rhizosphere of *Hibiscus esculentus*, 219.
—*flavus*, antagonism of to *Corticium solani*, 27.
— —, cleistothecia and sclerotia production in, 48.
— —, hosts of, 1467.
— — in soil, 58.
— — on cotton, 1574, 1575.
— — on groundnut, see Groundnut.
— — on maize, 2476, 3436.
[*Aspergillus flavus*] on rice, stored, 520.
—*fumigatus*, antagonism of mycolytic bacteria to, 2074.
— — in rhizosphere of *Hibiscus cannabi* 219.
*— — on orange, 2719.
— — on spruce, 1326.
— — on tomato seed, 1302.
— *glaucus* on beet, stored, 2903.
— — on tobacco, 3211.
— —, strs. of, 1038.
— *melleus* in rhizosphere of cotton, 3447.
— — in soil, 3447.
*— *micro-viride-citrinus* on groundnut, 201
— *niger*, effect of filtrates of, on infectivity potato virus X ring spot str., 470b; rac mosaic virus, 471.
— —, electron microscopy of, 3739.
— —, factors affecting cleistothecia and sc otia production in, 48.
— —, genetic effects of ferbam on, 3724.
— — in rhizosphere of *Hibiscus esculentus* 2
— —, metabolism of NAA by, 393c.
— — on beet, stored, 2903.
— — on cotton, 1575.
— — on cucumber, 2581.
— — on groundnut, see Groundnut.
— — on spruce, 1326.
— — on tobacco, 3211.
— — on vegetables, 2893.
— —, primary luminescence of, 460.
— —, production of pectolytic enzymes by, 3719.
— —, toxicity of lead to, 3695; 1-phenylth semicarbazide to, 2984; phosphoric a derivatives to, 1763.
— *ochraceus* in rhizosphere of *Hibiscus escu tus*, 219.
— — on beet, stored, 2903.
— — on maize, 1524.
— —, transformation of steroids by spores 2065.
— *oryzae*, longevity of conidia of, in stora 2066.
— —, primary luminescence of, 460.
— —, technique for storage of, 2093.
— *paradoxus*, factors affecting cleistothecia sclerotia production in, 48.
— *sclerotiorum*, factors affecting cleistoth and sclerotia production in, 48.
— *tamarii* on *Ceratitis capitata*, 2040.
— *terreus*, antagonism of mycolytic soil b teria to, 2074; of, to *Corticium solani*, 27
— — in rhizosphere of cotton, 3447; *Hibiscus esculentus*, 219.
— — in soil, 3447.
— —, primary luminescence of, 460.
— *terricola*, technique for long-term storage 2093.
— *trifolii*, physiology of, 438.
— *ustus* in rhizosphere of *Hibiscus esculen* 219.
— *versicolor* on groundnut, 3645.
Aspor against *Peronospora parasitica* on c bage, 2896; *Phytophthora infestans* on pot 1236; *Polystigma rubrum* on plum, 2 *Pseudoperonospora cubensis* on cucum 970; *Sporidesmium sicynum* on fig, 1213.
— in combination against *Fabraea maculatc* pear and quince, 3495.
— blue against *Peronospora tabacina*, 1280
Aster (*Callistephus chinensis*), *Coleospor asterum* on, in U.S.A., 3235.

ter], *Fusarium* on, fungicidal properties of hytoncides of, 1148.
— *oxysporum* f.sp. *callistephi* on, in Iran, 063b.
tobacco rattle virus on, identification and ymptoms of, 2494.
ellows virus, interaction between strs. and ectors of, 474.
— — in *Macrosteles fascifrons*, 1797.
— — on aster, effect of chlortetracycline n, 3669b.
— — on *Chrysanthemum carinatum*, 3669b.
— — on *Gladiolus*, 2366.
— — on *Nicotiana rustica* var. *humulis*, 473.
— — on *Petunia*, 657.
— — on sunflower, 1222.
— —, *Rauwolfia serpentina* 'bunchy top' irus symptoms resembling, 2799.
— —, California, on celery, 3611.
erophora lycoperdoides and *A. parasitica*, ffect of organic N: carbohydrate ratio on, 6.
ragalus dwarf virus, hosts and properties of, 712.
sinicus, *Curvularia trifolii* on, 1175.
insonella hypoxylon on *Danthonia spicata*, 33.
azine as soil disinfectant, 3093.
effect of, on *Gibberella zeae*, 2044; maize lwarf mosaic virus, 3093; *Sclerotium rolfsii* nd *Trichoderma viride*, 430.
iplex canescens, effect of hydrogen peroxide n seeds of, 1980.
opa belladonna mottle virus on *A. bella-lonna* in Bulgaria, 2649; Germany, 394e, 649; hosts of, 394e; properties of, 394e, 649; transmission of, 2649.
bretia deltoidea, *Peronospora aubretiae* on, in Switzerland, 1809.
reobasidium pullulans, effect of ethanol pro-luced by, on growth of *Armillaria mellea*, 773, 2072; of pH and temp. on growth of, 61.
—, melanins of, 3351.
— on barley, 2468.
— on *Pseudotsuga menziesii*, 3240.
— on *Tilia europaea*, 662.
— on timber, 1700, 2285, 3610.
—, studies on, 3377.
reofungin against *Alternaria tenuis* on omato, 3342; *Cochliobolus miyabeanus* and *C. nodulosus*, 3341; *Diplodia natalensis* on nango, 3342; *Exobasidium vexans*, 621c; *Phytophthora citrophthora* on lime, 1885; *Trichometasphaeria turcica*, 3341.
inhibition of *Rosellinia necatrix* on apple by, 3154.
in combination as seed treatment for rice, 3341.
reomycin against mulberry dwarf virus on nulberry, 656.
effect of, on *Xanthomonas campestris*, 1338.
riculariales in U.S.S.R., key to, 454.
ena, see Oats.
ocado pear (*Persea americana*), *Fusarium quiseti* on, in Israel, 1466.
—, *Glomerella cingulata* on, in Mexico, actors affecting incidence of and *Sphaceloma erseae* associated with, 3167.
—, *Phytophthora cinnamomi* on, control, 863.
onopus affinis, *Axonopus* chlorotic streak irus on, in New Guinea, transmission of, y vectors, 845.
[*Axonopus affinis*] yellow streak virus in Papua and New Guinea, hosts and transmission of, 400.
6-azacystone, effect of, on *Botrytis cinerea*, *Colletotrichum lindemuthianum*, and *Glomerella cingulata*, 1400.
**Azadirachta indica*, *Pseudomonas azadirachtae* on, in India, 326.
6-azauracil, chemotherapeutic effect of, on *Cladosporium cucumerinum* on cucumber, 3666p.
—, effect of, on *Botrytis cinerea*, *Colletotrichum lindemuthianum*, and *Glomerella cingulata*, 1400; on RNA biosynthesis, 3690.

B–500 against *Botrytis cinerea* on grapevine, 3522.
Bacillin, effect of, on *Fomes tremulae*, 2388.
Bacillus cereus in soil, 441.
— — var. *mycoides*, effect of culture filtrate of, on sclerotia of *Colletotrichum coccodes* and *Mycosphaerella ligulicola*, 3698.
— *licheniformis*, effect of, on growth and sclerotium formation of fungi, 3363.
— *megaterium* in soil, 441.
— *mesentericus* in soil, 441, 2075.
— *polymyxa*, separation of enzymes in culture filtrates of, 2372.
— *pumilus* on cotton, 3456.
— *subtilis*, antagonism of, to *Corticium solani*, 27; *Streptomyces scabies*, 2553.
— —, effect of filtrates of, on radish mosaic virus on Indian mustard, 471; of, on growth and sclerotium formation by fungi, 3363.
— — in soil, 441, 1428.
— —, inhibition of, by amo-1618, 2578.
— — on cotton, 1575.
— — on groundnut, 2017.
— —, technique for storage of, 2093.
Bacteria, a guide to the identification of the genera of, 2nd edition, 11.
—, effect of sealed and unsealed containers on longevity of, 55.
—, international code of nomenclature of, reprint of English edition, 991.
— on plants, 12.
—, plant pathogenic, antagonism of *Streptomyces annulatus* to, 421; classification of, 1388.
Bacterium S–9, antibiotic effect of, on plant pathogenic bacteria, 2330.
Banana (*Musa* spp.), bacterium on, association of symptoms of, with insect, 2222.
—, *Botryodiplodia* on roots of, 3512.
—, — *theobromae* on, effect of basofix and mastisan on, 2782.
— bunchy top virus on banana in Hong Kong, 3668d; N.S.W. and W. Samoa, 266.
—, *Colletotrichum musae* on, in India, 3061; effect of basofix and mastisan on, 2782; of 2-deoxy-D-glucose on respiration of, 1415; growth of, on various C sources, 1416; symptoms of, 3061.
—, *Deightoniella torulosa* on, in Hawaii, symptoms of, 2783.
*— disease in the Philippines, symptoms of and (?)transmission of, by vectors, 267.
— diseases in Colombia, 1932; the Pacific area, 3165; economics of spraying against from air and ground, 392.
—, *Fusarium* on roots of, 3512.
—, — *oxysporum* f.sp. *cubense* on, in Colombia

1932; comparison of cell wall composition in resistant and susceptible plants, 3166.
[Banana, *Fusarium*] *roseum* 'Gibbosum' on, in C. America, symptoms of, 2221.
—, *Gibberella fujikuroi* on, effect of basofix and mastisan on, 2782.
—, *Glomerella cingulata* on, effect of 2-deoxy-D-glucose on respiration of, 1415; growth of, on various C sources, 1416.
—, *Mycosphaerella musicola* on, in Colombia, 1932, 2220; Costa Rica, Honduras and Panama, 1212; Hong Kong, 3668d; control, 1932, 2220; factors affecting perithecia and sporodochia production by, 1212; variation of fungicide deposits on, from spraying apparatus, 2960e.
—, *Nigrospora musae* on, in N.S.W., 2032r.
—, *Pseudomonas solanacearum* on, in Colombia, 2535; *Peru, 1933; *Colletotrichum musae* associated with, 2535; control, 3306.
—, *Rhizoctonia* on roots of, 3512.
—, *Verticillium theobromae* on, effect of basofix and mastisan on, 2782.
— virus diseases in the Pacific area, review of, 3165.
—, *Xanthomonas musacearum* can infect, 1389.
Barberry (*Berberis*), *Microsphaera berberidis* on, in Switzerland, 1809.
—, *Puccinia arrhenatheri* on, in Austria, causing witches' broom, 2496.
—, — *graminis* on, in Austria, 2496; Denmark, 2962; Rumania, 1377a; as source of infection for cereals, 2962; intermediate host of, 2496; physiologic races of, 1377a; prevalence of physiologic races of, 3404.
Barley (*Hordeum*), *Alternaria* on, 2468.
—, *Aphanomyces cochlioides* on residues of, measurement of sporulation of, 440.
—, *Aureobasidium pullulans* on, 2468.
—, *Bromus* mosaic virus on, biochemical study on RNA synthesis in, 978f; effect of heat on, 2584b; electron microscopy of, 135; particle form and concentration of, 135; technique for measuring synthesis in, 1049.
—, *Calonectria nivalis* on, in the Pacific Northwest, ecology and (?)significance of perithecia of, 2681.
—, *Cercosporella herpotrichoides* on, effect of furidazole and thiabendazole on, 1819; of temp. on, 783.
—, *Cladosporium* on, 2468.
—, *Cochliobolus sativus* on, 2690; in Colombia, 1849; control, 1849; effect of amino acids on pathogenicity of, 1507; of UV light on resistance to, 2466; factors affecting, 2143; resistance to, 2467; var. react. to, 1506.
—, *Colletotrichum graminicola* on, in India, 3099; effect of temp. on ability to form appressoria and penetrate leaves of, 140.
—, damping-off of, effect of chlorcholinchloride on, 1497.
— diseases, in Argentina, 2117; review of, 100; severity of, 2117; symptoms of, 1473.
—, effect of, on survival of *Typhula idahoensis* sclerotia in soil, 3409.
—, *Erysiphe graminis* on, in Colombia, 1849; Denmark, 499; England, 2585h, 2689; Europe, 2688; Germany (E.), 2029; Ireland, Japan, and N. America, 2689; U.K., 2688; apparatus for trapping conidia and urediospores of, in upper air, 138; control, 1849; cytological and histological aspects of host-parasite relationships of, 1850; effect of furidazole and thiabendazole on, 1819; gamma rays on, 500; of growth substance stomatal opening, 1100; of host cells growth of, 797; of, on growth regulator 2140; of, on isozymes, 2465; electron mi scopy of, 1099, 1502; factors affecting, 1820; genetics of, 1504, 2688, 2689; hi chemical changes in epidermal cell wall 3429; importance of perithecia, 499; in ence of, 2029; intensity of, 3300a; legisl against in Denmark, 2684; physiologic r of, 2585g, 2688; primary appressoria fo tion in, 2141; relationship between wea conditions, incidence, and yield, 139; re ance to, 2588g; var. react. to, 2585h.
[Barley] foot rot, 1094.
— frost damage, review of, 100.
—, fungi on, resistance to, 798.
—, *Fusarium* on residues of, 440.
—, — *culmorum* on, factors affecting, 2143
—, — *oxysporum* on roots of, compet colonization of, with sterile dark fu 1022b.
—, — *poae* on, symptoms of, 2321.
—, — *roseum* on, in France, damage caus and effect of preceding crop on incidenc 99.
—, *Helminthosporium* on, control, 2446.
— leaf diseases, control, 1375h.
—, maize virus can infect, 150.
—, *Ophiobolus graminis* on, effect of, on, 3 incidence and infection of, 1375e.
—, *Poa annua* virus on, resemblance of sy toms of, to aster yellows group vir 2510.
—, *Pseudomonas rubrilineans* can infect, 80
—, *Puccinia graminis* on, in Canada, 3 India, 111, 795; formation of appressori 103; germination of uredospores of, epidermis of, 103; physiologic races of, 795; prevalence of physiologic races of, 3 var. react. to, 795.
—, — *hordei* on, in Colombia, 1849; Eng 2585h; U.S.S.R., 1815; chlorophyll and N in, 136; control, 1849, 2686; legisl against in Denmark, 2684; var. react 2585h.
—, — *recondita* on, in India, 111; effec furidazole and thiabendazole on, 1819.
—, — *striiformis* on, in Austria, 2030; Cze slovakia, 2463; England, 2585h; India, 795; incidence of, 2030; legislation agai Denmark, 2684; physiologic races of, 795, 2463; severity of, 2685; var. reac 795, 2463, 2585h, 2685h.
—, *Pyrenophora graminea* on, control, 98.
—, — *teres* on, 2690; in Colombia, 1849; trol, 1849; effect of fertilizers on resis to, 1101; of UV light on resistance to, genetics of, 2142; nature of resistanc 1505; resistance to and virulence of, var. react. to, 1506.
—, *Pythium* on residues of, 440.
—, — *aphanidermatum* on, pathogenicit 2442.
—, — *splendens* on, effect of seed treatme and pathogenicity of, 2442.
—, *Rhyncosporium secalis* on, in Colo 1849; England, 2585h; assessing infecti 1375i.
—, rice hoja blanca virus on, transmissi by vectors, 3103.
—, sterile dark fungi on roots of, coloniz

and persistence of, 1022a; competitive ability of, 1022b.
arley] stripe mosaic virus on barley in Rumania, 2135; *Yugoslavia, 3427; detection of, 2106; effect of time of infection on yield, 1499; electron microscopy of, 1498; hosts of, 3427; immunological characteristics of, 501; non-transmission of, by seed, 1499; transmission of, by seed, 2106; var. react. to, 2106, 2135.
, *Tilletia pancicii* on, factors affecting viability of spores of, 1842.
, *Typhula incarnata* on, effect of quintozene on, 2691.
, *Uromyces viennot-bourginii* on, in Israel, 137.
, Ustilaginales on, in Germany, 1479.
, *Ustilago hordei* on, control, 1377c; genetics of resistance to, 2464; N requirement of, 1500; testing fungicides against, 1853.
, — *nuda* on, in Bulgaria, 2138; Germany (E.), 2029; Poland, 3406; albino str. of, 2138; artificial inoculation of, 132a, 2443; control, 133, 1377c, 1480, 1852, 2139, 2446, 3091, 3406; distribution of, 796a; effect of irradiation of seed on resistance to, 1501; quintozene and quintozene-thiram on, 2134; volatile substances on, 134; on anatomical properties of, 796b; 1851; on seedling vigour and seed size, 2687; incidence of, 2029, 3406; localization of, 3428; method for assessing susceptibility to, 2137; penetration of, 3428; physiologic races of, 796a, b; relationship between resistance to and no. of germinating spores on stigma, 2136; resistance of, to anaerobic media, 483; technique for determining vitality of seed of, 2444; var. react. to, 796a, 2443; virulence of, 132b; vitavax ineffective against, 2445.
-, *Verticillium* on, resistance to, 478.
- viruses A1 and B1 on barley in Rumania, 2135.
-, wheat stunt virus on, incidence of, 1474.
- yellow dwarf virus on barley, effect of aphid nos. and growth stage on determination of tolerance to, 95; effect of, on, 1847; factors affecting respiration in, 2462; genetics of resistance to, 3665b; movement of, 3090; serological differences between isolates of, 1078; tolerance to, 3300c; transmission of, by vectors, 2961, 3090.
- — — — on cereals, 782, 2659.
- — — — on Gramineae, 232.
- — — — on *Lolium perenne*, 3300c.
- — — — on oats, see Oats.
- — — — on wheat, 95, 1079, 3300c.
- — — — strs., transmission of, by vectors, 394e.
- — mosaic virus on barley in Europe and Japan, susceptibility to, 1848.
- straw, inhibition of *Fusarium solani* f.sp. *phaseoli* by, 2909.
asfungin against *Botrytis cinerea* on strawberry, 3164.
asidiomycetes II (Agaricales), 3rd revised edition of German book on, 43.
-, effect of calcium cyanamide on development of, 3331.
-, ergosterol content of, 2387.
-, mycorrhizal, growth and spore germination of, 22; inhibiting *Corticium solani* on pine, 1411.
- on timber, 3249.
-, toxicity of D735 and F427 to, 739; of oxathiin fungicides to, 978b.
Basidiospores, studies on germinative pore of, 446.
Basofix, effect of, on fungi on banana, 2782.
Bathycoelia thalassina associated with boron deficiency in cacao, 1472.
Bayer 5660 as seed treatment for cereals, 1077.
— — versus panogen metox, 1077.
*Bean, Broad (*Vicia faba*), *Ascochyta fabae* on, in Denmark, 730c; control, 1595.
—, —, bean leaf roll virus on, in (?)Iran, 3262; Lithuania, 2317.
—, —, — yellow mosaic virus on, in Bulgaria, 1460; Iran, 3262.
—, —, *Botrytis cinerea* on, effect of pollen grains on growth of, 3350; resistance to, 3666q.
—, —, — *fabae* on, in *Denmark, 730c; Iran, 3262; control, 1399, 3692; effect of benzyladenine on, 1726; of decenylsuccinic acid on, 3632; of different N sources on sugar and amino acids leached from leaves of, 1374k; of fungicide vapours on, 419; resistance to, 3666q; var. react. to, 3275.
—, —, clover enation (?)virus on, symptoms of, 2515.
—, —, *Corticium solani* on, 126; control, 3633.
—, —, cucumber mosaic virus on, formation of local necrotic lesions of, on chlorophyll deficient leaves of, 2638.
—, —, mottle virus, assembly and properties of, 3278.
—, —, pea enation mosaic virus on, characteristics, electron microscopy and purification of, 3263.
—, —, — mosaic virus, stem browning str. can infect, 2904.
—, —, stain virus on broad bean, serology and properties of, 1725.
—, —, tobacco mosaic virus str. Y–TAMV on, 3385.
—, —, true mosaic virus, see Echtes Ackerbohnemosaic virus.
—, —, *Uromyces viciae-fabae* on, physiology of, 956, 3270, 3720; var. react. to, 3275.
—, —, virus diseases, var. react. to, 3275.
Bean, French and Runner (*Phaseolus* spp.), *Agrobacterium tumefaciens* on, effect of growth promoting factor from, on crown-gall tumour growth, 3320a, b.
—, alfalfa mosaic virus on, differentiation of strs. of, 2503.
—, apple latent virus on, 3487.
— as indicator for lucerne mosaic virus, 2514.
—, bacterium S–9 on, antibiotic effect of, on plant pathogenic bacteria, 2330.
—, beet curly top virus on, alteration in auxin content caused by, 2650.
—, *Cercospora canescens* and *C. cruenta* on, in Venezuela, 1381k.
—, citrus infectious variegation virus can infect, 189; transmission of mechanically, 2715.
—, *Cochliobolus carbonum* on, physiology of resistance to, 2333.
*—, — *sativus* on, in Canada, oats as source of infection, 3268.
—, — *victoriae* on, in U.S.A., resemblance of symptoms of to *C. sativus* on bean in Canada, 3268.
—, *Colletotrichum lindemuthianum* on, in Brazil, 954; Malawi, 1747a; Venezuela, 1381k;

physiologic races of, 954; resistance to, 3666q; var. react. to, 954.
[Bean] common mosaic virus in Turkey, transmission of, by vectors, 1796.
— — — —, resemblance of symptoms of passion fruit woodiness virus to, 271.
— — — — on bean in Iran, 3262; U.S.S.R., 696; Yugoslavia, 1349; control, 696; distribution, hosts and incidence of, 1349; transmission of, 1349; by sap and seed, 696; by vectors, 3305h; var. react. to, 696.
— — — — on Leguminosae, 2317, 2318.
—, *Corticium solani* on, in Venezuela, 1381k; effect of *Aphelenchus avenae* on pathogenic activity and survival of, 2076; of phytoalexins produced by on, 955; mode of penetration by, 2591; var. react. to, 2914.
—, *Corynebacterium flaccumfaciens* var. *violaceum* on, description of, 2325; similarity of to *C. flaccumfaciens* and *C. f.* var. *aurantiacum*, 2326.
—, cowpea chlorotic mottle virus on, specific infectivity of, 3392.
— diseases in Venezuela, 1381k; symptoms and transmission of, 3613.
—, *Dolichos* enation mosaic virus on, electron microscope study on, 1459.
—, effect of exudates of, on growth of fungi, 755; of fungi on respiration of, 751; of ozone on, 373; peroxyacetyl nitrate on, 3700e; of sap of, on *Caragana arborescens* virus disease, 1975.
—, *Erysiphe polygoni* on, control, 1401; effect of nitrophenols on, 2598.
—, — — +southern bean mosaic virus on, 3266; interactions between, 3266.
—, *Fusarium* on, in U.S.A., 3267; breeding against, 372.
—, — *oxysporum* f.sp. *phaseoli* on, in *Brazil, 953; Colombia, 2323b; *Costa Rica, 1723; description and symptoms of, 1723; var. react. to, 1723.
—, — *roseum* f.sp. *phaseoli* on, in Colombia, 2323a, b; new form of, 2323a.
—, — *solani* f.sp. *phaseoli* on bean in Colombia, 2323b; Venezuela, 1381k; control, 3669g; effect of N on, 2909; of UV light on, 2908; inhibition of, by barley residues, 2909.
—, groundnut stunt virus on, in U.S.A., 1350; designated PSV–W, 1350.
—, growth of under gnotobiotic conditions, 89.
—, *Isariopsis griseola* on, in Iran, 3262; Ivory Coast, 85; Malawi, 1747a; Venezuela, 1381k, 2007; control, factors affecting, and morphology of, 85; symptoms of, 85, 2007; var. react. to, 2007.
?— leaf roll virus on broad bean, 3262.
— — — — on Leguminosae, 2317, 2318.
— — — — on pea, 3630.
—, lucerne mosaic virus on, effect of temp. on infection by, 3393.
—, — — — +bean yellow mosaic virus on, interaction of, 775.
—, *Macrophomina phaseoli* on, in Malawi, 1747a; Venezuela, 1381k.
— mosaic virus on bean, detection of, 2105, 2106.
*— 'oily pod' in Rhodesia, 3a.
—, ozone injury to, in relation to sulphydryl and ATP content, 3702.
—, *Phakopsora pachyrhizi* on, 1355.
—, *Phytophthora nicotianae* var. *parasitica* on, cultural and pathogenic variation in, 2657.
[Bean] pod mottle virus on soybean, 2919.
— — — — +soybean mosaic virus strs. 1 a 2 on soybean, 2919.
—, *Pseudomonas phaseolicola* on, 3299j; Germany, 1353; *Malawi, 1747a; antibi effect of bacterium S–9 on, 2330; biochem difference between healthy and suscepti leaves of, 2328; breeding against, 372, 13 control, 2327; detection of, 699, 32 physiologic races of, 1353; pigment-form mutants of, 2329; technique for assess content of, 1375v.
—, — *savastanoi* on, induction of necr lesions by, 410.
—, — *syringae* on, in U.S.A., survival transmission of, by seed, 2331.
—, — *tabaci* on, factors affecting, 394c.
—, — *viridiflava* on, 3299j.
—, *Pythium aphanidermatum* on, in Ivo Coast, 85; Venezuela, 1381k; morphol and symptoms of, 85.
*—, — *myriotylum* on, in U.S.A., 2913; su tibility to, 2434.
—, *Sclerotinia fructicola* on, effect of O ten on production of phytoalexins by, 1420.
—, — *sclerotiorum* on, control, 1352.
—, *Sclerotium rolfsii* on, in Venezuela, 138 physiologic races of, 1381i; susceptibility 1810.
— southern mosaic virus, non-transmissio by *Tetranychus urticae*, 70.
— — — — on bean, infection of uninju leaves by, 1454; peroxidase isozymes in, 2
— — — — +*Erysiphe polygoni* on bean, in actions between, 3266.
—, *Thielaviopsis basicola* on, effect of amendments on, 2615b; enzymes associa with, 2005.
—, tar vapour injury to, 1072.
—, tobacco mosaic virus on, effect of chlor phenicol on protein synthesis in, 1743z light on susceptibility to, 79; not infec uninjured leaves of, 1454; peroxi isozymes in, 2112.
—, — necrosis virus on, effect of leaf w balance on, 1053; of UV light on, 2584a on peroxidase activity and rate of respira of, 1054; infection of uninjured leaves by, 14
—, — ring spot virus on, 2645; peroxi isozymes in, 2112.
—, *Uromyces appendiculatus* on, in Iran, 3 Ivory Coast, 85; Malawi, 1747a; Venezu 1381k; adaptation of, to heat, 1771; breed against, 372; changes in nucleic acid con after infection, 2006; control, 85; effec gravity on development of, 698; fac affecting, 85; mobilization factors in, 3 morphology of, 85; physiology of, 3 3271, 3720; properties of hyphae isol from, 697; protein synthesis by uredosp of, 3666d; selective retention of uredosp by leaves, 2324; symptoms of, 85; virul of, 2912.
— virus diseases, 1381m; in relation to num of trichomes, 776.
—, *Xanthomonas phaseoli* on, 3299j; con 1377h; effect of antibiotics on, 397c.
—, — — var. *fuscans* on, in *Malawi, 17 *S. Africa, 2915; factors affecting pigm production and virulence of, 1724.
— yellow mosaic virus, relationship of, clover virus in Hungary, 1743b; to mosaic virus, 1460, 3048.

ean yellow mosaic virus], resemblance of symptoms of passion fruit woodiness virus to, 271.
— — — — on bean in Bulgaria, 1460; Iran, 3262; breeding against, 372; distribution of, 1349; hosts of, 1349, 1460; symptoms of, 3483; transmission of, 1349, 1460, 3305h.
— — — — on broad bean, 3262.
— — — — on *Cicer arietinum*, 3280.
— — — — on clover, see Clover.
— — — — on cowpea, 3276.
— — — — on *Crotalaria spectabilis*, 1803.
— — — — on *Gladiolus*, 2366.
— — — — on Leguminosae, 2317, 2318.
— — — — on lupin, 245, 2318, 3483.
— — — — on pea, 3305h.
— — — — +lucerne mosaic virus on bean, 775.
— — — — + — — — — on pea, 775, 952.
— — — — +*Pythium* on pea, 952.
eauveria bassiana, culture of, 737a, 2975.
— — on *Eurygaster*, 2976.
— —, physiological variations of, 3684.
— *densa* on *Hypera postica*, 2596.
— sp. on pests of *Crotalaria juncea*, 1392.
— *tenella*, use of, for biological control of *Melolontha melolontha*, 737d.
Beech (*Fagus*) bark necrosis, aetiology of, 1306.
—, *Fomes fomentarius* on, biology of, 1702.
—, *Stereum frustulosum*, *Trametes dickinsii*, and *T. sanguinea* on, calorimetric measurements of decayed, 2889.
Bees, *Ascosphaera apis* on, in U.S.A., 2376; factors affecting, 737b.
Beet (*Beta vulgaris*), *Alternaria* on, in Belgium, 1705.
—, — *tenuis* on, in U.S.S.R., 1344.
—, *Aphanomyces cochlioides* on, effect of crop residues on, 440; non-occurrence of, in U.S.S.R., 1344.
—, boron deficiency in, 1434.
—, *Botrytis cinerea* on, var. react. to, 2315.
—, *Cercospora beticola* on, in Belgium, 1705; Bulgaria, 1341; Japan, 1709; U.S.A., 2314; biology of, 1341; breeding against, 2313; control, 368, 1341, 1377e, 1743r, 3259; correlation of, with beet savoy virus, 690; factors affecting, 1377e, 1709; hosts of, 2314; relationship of chemical characters to resistance to, 3258; technique for obtaining conidia of, 368; transmission of, by seed and soil, 1377e; weather in relation to conidial dispersal of, 691.
—, cucumber mosaic virus on, effect of supplements on infectivity of, 2102; inactivation and inhibition of, by beet extracts, 689; *in vitro* increase in infectivity of, 466.
— curly top virus on bean, 2650.
— — — — on beet, in Iran, *945, 3063c; alteration in auxin content caused by, 2650; breeding against, 2313; identification of, 3063c; resemblance of new disease to, 945.
— — — — on tomato, see Tomato.
—, *Cylindrocladium scoparium* on, 1930.
— damping-off, 3260.
— diseases in Poland, 2956; Italy, 1807.
—, *Erwinia* on, in Iran, 3063d.
—, *Erysiphe betae* on, in Denmark, 1342; U.S.S.R., 947; C.M.I. description of, 1035b; comparison of perfect state of, with *E. communis* and *E. polygoni*, 1342; control, factors affecting, overwintering of, and var. react. to, 947.
[Beet], fungi on stored in U.S.S.R., effect of, on sugar content of, 2903.
—, *Fusarium* on, in Poland, 2576; U.S.S.R., 1344.
— leaf curl virus, transmission of, 395f.
— mild yellowing virus on beet in England, 2584q, 2585d; *Germany, 1708; incidence of, 2584q; transmission of, by vectors, 1708, 2584q.
— — — — on *Capsella bursa-pastoris*, 1708.
— mosaic virus, non-transmission of, by *Tetranychus urticae*, 70.
— — — — on beet in Chile, distribution of, 942; effect of oil on transmission of, by vectors, 3390.
—, *Penicillium* on, in U.S.S.R., 1344.
—, *Peronospora farinosa* on, in England, 692, 2584r; U.S.S.R., 369; control, 2584r, 2899; effect of sugar on susceptibility to, 2575; factors affecting, 369, 946, 2584r; overwintering and severity of, 692; sporulation of, 1710; var. react. to, 3299c.
—, *Pleospora bjoerlingii* on, in Belgium, 1705; Germany, 948; Scotland, associated with strangles, 3625; U.S.S.R., 1344; C.M.I. description of, 1035a; factors affecting, 1344; perfect state of *Phoma betae*, 948; var. react. to, 2315.
—, *Polymyxa betae* on, in the Netherlands, 949; differentiation of, from *P. graminis*, 1345b.
—, *Pseudomonas aptata* on, in Japan, description, host range, and symptoms of, 1711.
—, *Pythium* on, in Poland, 2576.
*—, — *aphanidermatum* on, in Canada, 3260.
—, — *debaryanum* on, non-occurrence of, in U.S.S.R., 1344.
—, *Ramularia beticola* on, in England, 2584r, 2585e; *Germany (E.), 1343; control and factors affecting, 2584r.
— savoy virus on beet, *Cercospora beticola* correlated with and detrimental effect of virus on, 690.
—, *Sclerotium rolfsii* on, in India, symptoms of, 3061.
— storage disorders, 2903.
— strangles, *Pleospora bjoerlingii* occasionally associated with, 3625.
—, toxicity and tolerable residues of chloride products and triphenyltin acetate in, 2042.
—, *Uromyces betae* on, in England, 2585e.
—, *Verticillium* on, in Poland, 2576.
— virus diseases in Turkey, 1796; detecting oil deposits against aphid vectors of, 367; incidence and spread of, 2584e; transmission of, by vectors, 1796.
— western yellows virus, aphid feeding in relation to acquisition and transmission of, 777.
— — — — on beet, in U.S.A., 688, 944, 2000, 3257; control, 3257; effect of, on sugar content of, 3257; of, on yield, 688, 3257; hosts and overwintering of, 944; ?presence of, in intestines of *Myzus persicae*, 2000; source of infection for, 944; transmission of, by vectors, 944; weeds as source of infection for, 3257
— — — — +beet yellows virus str. on beet, effect of, on guard cell chloroplasts and yield, 687.
— yellow vein virus on beet, detrimental effect of, on, 690.
— — wilt virus on beet in Argentina, 2312;

Chile, 942, 2312; distribution of, 942; hosts of and transmission of, 2312.
[Beet] yellows virus on beet in Belgium, 1705, 1706, 2900, 2901; Chile, 942; England, 943, 1707, 2584q, 2585d; Germany, 1708; U.S.A., 3257; aerial photography of, 392d; biology of, 2586e; control, 1706, 1707, 2584q, 2899, 2901, 3257, 3624; diagnosis of, 366, 686; distribution of, 942; effect of time of spraying on, 943; of, on guard cell chloroplasts, 687; of, on sugar content, 2900, 3257; of, on yield, 687, 1705, 3257; electron microscopy of, 1999; free amino acid content of leaves in relation to, 394d; incidence of, 2584q; localization of, 366; transmission of, by vectors, 1706, 1707, 2357a, 2584q, 2900; var. react. to, 2585d.
— — — str.+beet western yellows virus on beet, effect of, on guard cell chloroplasts, 687.
Belladonna mottle virus on *Atropa belladonna*, 2649.
Bellevalia eigii, *Uromyces viennot-bourginii* on, in Israel, 137.
Bemisia tabaci transmitting ?*Abutilon* mosaic virus str., 1055; Malvaceae viruses, 1056; tobacco leaf curl virus str., 3568.
Benzene hexachloride, effect of, on *Armillaria mellea* in soil, 3019.
— — in combination against vectors of sesame viruses, 2800.
Benzimidazole, effect of, on resistance of cereals to *Erysiphe graminis*, 1743p.
—, ineffective against maize necrotic leaf spot, 805.
Benzol in combination against *Erysiphe cichoracearum* on cucumber, 2344.
Benzthiazolyl-thioacetic acid, effect of, on proteins of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium dahliae*, 1013; of, on N metabolism in *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium dahliae*, 1012.
Benzyladenine, effect of, on *Botrytis fabae* on broad bean, 1726.
Berberis, see Barberry.
Bercema F against *Streptomyces scabies* on potato, 1377g.
— - ziram 70 against *Polystigma rubrum* on plum, 2528.
Bermuda grass, see *Cynodon dactylon*.
Beta, *Peronospora farinosa* on, *P. f.* f.sp. *betae* proposed for, 1039.
— *vulgaris*, see Beet.
— — var. *cicla*, see Chard.
Betel, see *Piper betle*.
Betula, see Birch.
BHC, see Benzene hexachloride.
Bibliography of Czechoslovak forestry, 1679.
—, F.A.O. Plant Production and Protection Division publs. 1945–1966, 1748.
Bidens pilosa, *Cercospora coffeicola* on, sporulation, survival and symptoms of, 2169.
Bifusella crepidiformis on spruce, 358.
*— *linearis* on pine, 2867.
Binapacryl against *Podosphaera leucotricha*, 2199.
Biotin, growth response of *Fusarium lateritium* to, 2056.
Bipolaris sorokiniana, see *Cochliobolus sativus*.
Birch (*Betula*), *Coprinus micaceus* on, type of rot caused by, 2890.
— dieback in U.S.A., 1305.
—, *Fomes fomentarius* on, biological characteristics of, 680.
[Birch], *Godronia cassandrae* on, in Canad pathogenicity of, 2565.
—, mycorrhiza of, in U.S.S.R., 1001.
—, *Polyporus betulinus* on, effect of, on, 32
—, relationship between trunk injuries a extent of exposed wood surface, 2847.
(Bis(dimethylamido)phosphoryl) - 3 - alkyl - anilino-1,2,4-triazoles, systemic fungic activity of, 3693.
Bisdithane against *Peronospora arborescens* opium poppy, 281.
Blackberry (*Rubus* spp.) diseases, Agric. Han book U.S.D.A. on, 3507.
—, *Gnomonia rubi* on, non-differentiation isolate on rose from, 2357d.
Blaes E.C. against *Pyricularia oryzae* on ri 1120.
— —, toxicity of, to rice, 1120.
Blasticidin S against *Pyricularia oryzae* on ri 1541; vectors of rice stripe virus, 2706.
— —, effect of, on tobacco mosaic virus and potato virus X on tomato, 2108.
— —, resistance of *Pyricularia oryzae* to, 31
Blitane, new, against *Phytophthora infestans* potato, 1236.
—, —, constituents of, 1236.
Blitox–50 against *Mycosphaerella berkeley* groundnut, 3641.
Blumeriella jaapii on cherry, 2031f, 3302c.
Boletus, ergosterol content of, 2387.
— *edulis*, effect of culture of, on oak roo 2389.
— *elegans* on larch, forming mycorrhiza, 4
— *granulatus* on pine, forming mycorrhi 2603.
— *luteus* on pine, forming mycorrhiza, 424
Books, fungi on, control, 1408; inhibition by *Rhizopus stolonifer* and *Trichoderm viride*, 3703.
Boraginaceae, Erysiphaceae on, in U.S.S.R. 1037.
—, *Stemphylium* on, study on, 2590a.
Bordeaux mixture injury to *Narcissus*, 39 plum, 2528.
Boron, adaptation of *Corticium solani* cotton and potato to, 420.
— deficiency in beet, 1434; cacao, 1472; cele 3291; cherry, 3503; crops, 1434; flax, 4d; palm, 596, 2804; orange, (?)3063d.
— excess in flax, 4d.
— toxicity in rubber, 616.
— — +calcium deficiency in rubber, 616.
Botanical nomenclature, annotated glossary 2617.
Botran against *Sclerotinia sclerotiorum* on bea 1352.
— as soil treatment against *Sclerotium ce vorum* on onion, 2933a.
**Botryodiplodia theobromae* on *Achras sapo* 1064.
— — on *Antiaris africana*, 645.
— — on *Araucaria cunninghamii*, 1441.
— — on banana, 2782.
— — on cacao, 1471.
— — on kola, 2438c.
— — on *Litchi chinensis*, 864.
*— — on *Monstera deliciosa*, 545.
— — on orange, 2482.
— — on *Pycnanthus angolensis*, 645.
— *tubericola* on sweet potato, 2248.
Botryosphaeria ribis on *Liquidambar styraciflu* 2277.
— — on pine, 344.

otrytis allii, effect of alkylphenols on, 2986.
— — on onion, see Onion.
— — on vegetables, 1995.
— *byssoidea* on onion, 87.
— *cinerea*, *Acrostalagmus roseus* on sclerotia of, 1173b.
— — as test fungus, 745.
— —, autotropism in spores of, 2051.
— —, *Coniothyrium minitans* on sclerotia of, 1173b.
— —, cultural properties of, 3716.
— —, effect of phosphoric acid derivatives on, 1763.
— — in soil, 3018.
— —, life-cycle of, 453.
— — on beet, 2315, 2903.
— — on broad bean, 3350, 3632, 3666q.
— — on cabbage, 363, 1997.
— — on *Capsicum*, 720.
— — on carnation, 1151.
— — on *Cattleya*, 2504.
— — on *Chrysanthemum*, 390e, 836.
— — on *Cleonia lusitanica*, 2437.
*— — on coffee, 2359a.
— — on currants, 1375p.
— — on *Cymbidium*, 2504.
— — on grapevine, see Grapevine.
— — on lettuce, see Lettuce.
— — on pea, 1348.
— — on peony, 1148.
— — on persimmon, 2786.
— — on potato, 3191.
— — on Ranunculaceae, 539.
— — on raspberry, 2219, 3664e.
— — on spinach, 3261.
— — on strawberry, see Strawberry.
— — on sunflower, 1940.
— — on tomato, 318.
— — on vetch, 1915.
— —, production of pectolytic enzymes by, 3719.
— —, *Rhizopus stolonifer* and *Sporotrichum carnis* on sclerotia of, 1173b.
— —, testing efficacy of fungicides against, 2357j.
— —, types of secretions obtained from, 1374 l.
— *crystallina*, *Plicaria fulva* perfect state of, 1741.
— *fabae* on broad bean, see Bean, broad.
— *tulipae* on *Iris*, 2366,
— — on tulip, 550, 1590, 3473.
Box (*Buxus*), *Phytophthora nicotianae* var. *parasitica* on, epiphytology and etiology of, 834.
Brachycaudus helichrysi transmitting plum pox virus, 569.
Brassica diseases in Tasmania, symptoms of, 3253.
—, *Peronospora parasitica* on, control, 3299a.
—, sesamum phyllody virus on, in India, 3254.
— virus diseases in Hong Kong, 3668a.
*— *campestris*, *Macrophomina phaseoli* on, in U.S.A., 2436.
— — var. *sarson*, see Mustard, Indian.
*— *geniculata*, *Macrophomina phaseoli* on, in U.S.A., 2436.
— *jordanovii*, *Peronospora jordanovii* on, comparison of, with *P. parasitica* on cabbage, 1337.
— *juncea*, see Mustard, Chinese.
— *napobrassica*, see Swede.
— *napus*, see Turnip rape.
— — var. *oleifera*, see Rape.
[*Brassica*] *nigra*, see Mustard.
— — mosaic virus on Chinese cabbage, 362.
— *oleracea*, see Broccoli, Brussels sprouts, Cabbage, Cauliflower.
— — var. *acephala*, see Kale.
— *pekinensis*, see Cabbage, Chinese.
— *rapa*, see Turnip.
Brassicae, *Plasmodiophora brassicae* on, in Austria, 2030; Denmark, 730b; incidence of, 2030.
Brassicol, see Quintozene.
Brazilian tomato yellow band disease proposed for tomato ringspot disease in Brazil, 1291.
Breadfruit (*Artocarpus communis*) decline in Pacific Islands, 723.
**Bremia lactucae* on lettuce, 2a, 1375s, 3299b.
Brestan against *Cercospora beticola*, 1743r; *Omphalia pigmentata* and *O. tralucida* on date palm, 1944; *Phytophthora infestans* on potato, 1236, 2240.
Brevicoryne brassicae, *Entomophthora coronata* on, factors affecting, 1757.
Broad bean, see Bean, Broad.
Broccoli (*Brassica oleracea*), *Fusarium oxysporum* on, resistance mechanisms in, 2435.
—, *Gloeosporium concentricum* on, study on, 939.
5-bromouracil, effect of, on production of fusaric acid by *Fusarium oxysporum* f.sp. *vasinfectum*, 1015.
Bromus mosaic virus, detection of, 472.
— — —, properties of, 3278.
— — —, serological study on, 2742.
— — — on *Agropyron*, 1166.
— — — on *A. repens*, 1167.
— — — on barley, see Barley.
—, *Scolecotrichum graminis* on, in Brazil, 1168a.
—, wheat streak mosaic virus on, reservoir for, 3411.
— *catharticus*, *Pseudomonas setariae* on, 2746.
— *inermis*, *Pyrenophora bromi* on, in Germany (E.), 2743; control, 2511.
— —, *Selenophoma bromigena* on, susceptibility of northern and southern strs. of, to, 1169.
— *japonica*, *Puccinia graminis* and *P. recondita* on, 2660.
— *marginatus*, *Pseudomonas setariae* on, 2746.
— *tectorum*, *Puccinia recondita* on, reservoir for, 1487.
Brussels sprouts (*Brassica oleracea*), *Gloeosporium concentricum* on, study on, 939.
— —, *Pseudomonas maculicola* on, in England, 2585c.
Bryophyllum, *Puccinia graminis* on, germination of uredospores and formation of appressoria by, 103.
Buckwheat (*Fagopyrum esculentum*), *Cercospora beticola* on, 2314.
Bulb diseases, bulletin on, 832.
Butyl 2,4,5-T in diesel oil against *Dothidella ulei* on *Hevea* rubber, 880e.
1-(butylcarbamoyl)-2-benzimidazole carbamic acid methyl ester, see Fungicide 1991.
Buxus, see Box.
Byronia dioica virus disease, 390p.
Byssochlamys nivea, ascospore germination in, 2395.

C–449 (bis(1,2,2-trichloroethyl) sulfoxide) against *Botrytis allii* on onion, 380.

Cabbage (*Brassica oleracea*), *Alternaria brassicicola* on, control, 3299h.
— black ringspot virus on horse-radish, 1704.
—, *Botrytis cinerea* on, effect of, on cell protoplasts, 363; on ribosomes of, 1997.
—, cauliflower mosaic virus on, electron microscopy of, 2572.
—, *Corticium solani* on, in Poland, 3620; control, 1336, 2306; factors affecting, 2306, 3620; genetics of resistance to, 3256.
—, *Erysiphe polygoni* on, genetics of resistance to, 3256.
—, *Fusarium oxysporum* f.sp. *conglutinans* on, in *India, 683; genetics of resistance to, 3256.
—, *Geotrichum* on roots of, in Poland, 3620.
—, *Gloeosporium concentricum* on, study on, 939.
— internal tipburn, genetics of resistance to, 3256.
—, *Leptosphaeria maculans* on, in U.S.A., popular bulletin on, 3621; survival of, in soil, 1996.
—, *Moniliopsis aderholdii* on, form of *Corticium solani*, 455.
— mosaic virus on cabbage, genetics of resistance to, 3256.
—, *Olpidium brassicae* on, isolate differences in, 365.
—, *Peronospora parasitica* on, in Bulgaria, 2896; comparison of *P. jordanovii* on *Brassica jordanovii* with, 1337; control, 1375s, 2896, 3616; var. react. to, 2896.
—, *Plasmodiophora brassicae* on, in Bulgaria, 2307; Canada, 937; control, 394j, 1336, 2307, 2573a, b; 2895; factors affecting, 3619; metabolism in hypocotyls during development, 3618; testing for resistance to, 937; var. react. to, 937.
—, *Pythium debaryanum* on, in Poland, 3620.
— root diseases, effect of pesticides on, 2306.
— virus diseases control, 64.
—, *Xanthomonas campestris* on, in Yugoslavia, 3622; control, 996; incidence of, 3622.
—, yeasts on roots of, in Poland, 3620.
—, Chinese (*Brassica pekinensis*), *Brassica nigra* mosaic virus on, in the Philippines, 362.
—, —, *Erwinia aroideae* on, effect of sowing time on, 2897.
—, —, — *carotovora* can infect, 3315.
—, —, turnip mosaic virus on, electron microscopy of, 467.
—, —, — yellow mosaic virus on, origin of mosaic induced by, 1057.
—, —, — — — — strs. on, role of virus and leaf ontogeny in production of mosaic patterns by, 1703.
—, —, — — — — necrotic str. on, production of tubes of virus particles by, 3614.
Cacao (*Theobroma cacao*), boron deficiency in, in Ghana, *Bathycoelia thalassina* associated with, 1472.
—, *Botryodiplodia theobromae* on, associated with cacao dieback, 1471.
—, *Calonectria rigidiuscula* on, associated with cacao dieback, 1471; physiological requirements of, 3070c.
—, *Ceratocystis* on, screening for resistance to, 1470b.
—, — *fimbriata* on, chlorogenic acid content in relation to resistance to, 94; testing for resistance to, 781a; transmission of, by vectors, 1470a.
[Cacao] die-back in Papua and New Guinea, 400; distribution and effects of, and pathogens associated with, 1471.
—, *Fomes lignosus* and *F. noxius* on, in Nigeria, toxicity of tillex to, 2438b.
—, *Marasmius perniciosus* on, genetics of resistance to, 781b.
—, *Monilia roreri* on, in Ecuador, epidemiology of, 1469.
— mottle leaf virus, *Adansonia digitata* virus classified with, 1074.
— — — — on cacao, properties of, 480, 3070.
—, *Phytophthora heveae* on, in W. Malaysia and Sabah, 3060b.
—, — *palmivora* on, in Brazil, 1468, 2120; Ivory Coast, 1811; Nigeria, 2438a; Papua and New Guinea, 2121; control, 2438a; factors affecting, 2121; pod shells as source of infection, 1468; resistance to, 781c, 2120; role of phenolic compounds during infection of, 1076, 1812; screening for resistance to, 1470c; sites of survival of, 1811; variation of pathogenicity with source of inoculum, 1813; var. react. to, 2438a.
— swollen shoot virus, *Cola chlamydantha* virus classified with, 1074.
— — — — on cacao, purification and properties of, 3070a.
— — — — str. 1A on cacao, tolerance to, 1075.
—, *Verticillium dahliae* on, in Uganda, 3059.
— virus diseases in Nigeria, 2438a; transmission of, 3070b.
Cactus virus X, serology of, 2643.
Cadmium acetate, inhibition of tobacco mosaic virus on *Nicotiana glutinosa* by, 1801.
— succinate, tolerance of *Sclerotinia homoeocarpa* on *Agrostis* to, 2745.
**Caeoma sanctae-crucis* on *Araucaria araucana*, 1981.
Caesalpinia pulcherrima, Ravenelia humphreyana on, cuticular penetration by uredospores, 2037.
Cajanus cajan, see Pigeon pea.
Calaican against *Sporidesmium sicynum* on fig, 1213.
Calcium deficiency in flax, 4d; pea, 1g; rubber, 616.
—, effect of, on growth of *Helminthosporium*, 2063; on *Phytophthora nicotianae* on tobacco, 316.
— excess in flax, 4d.
— carbonate against apple lenticel rots, 1188.
— chloride against apple bitter pit, 253; *Botrytis allii* on onion, 380.
— cyanamide against *Cercosporella herpotrichoides* on wheat, 2678; *Typhula incarnata* on barley, 2691.
— —, effect of, on development of basidiomycetes, 3331; on fungi on nematodes, 3331; on *Fusarium*, 3331.
— nitrate against apple bitter pit, 253, 1608, 2522.
— — in combination against apple tree pit, 2207.
— polysulphide against *Podosphaera leucotricha*, 1182.
— sorbate against *Verticillium dahliae* on cotton, 1138.
— sulphate against strawberry crinkle virus on strawberry, 265.
— tetrathionate against *Erysiphe cichoracearum* on cucumber, 386.

endula, *Ascochyta delphinii*, *Phyllosticta aillardiae* and *Puccinia flaveriae* on, in J.S.S.R., 2732.
liciopsis pinea on pine, 345, 3238.
llistephus chinensis, see Aster.
lomel, see Mercurous Chloride.
lonectria crotalariae on groundnut, 962.
nivalis, interaction of near-UV light and emp. on sporulation of, 1017.
— on barley, 2681.
— on cereals, 1077, 1476.
— on rye, see Rye.
— on turf, 1592, 2032a.
— on wheat, see Wheat.
—, primary luminescence of, 460.
quinqueseptata, perfect state of *Cylindrocladium quinqueseptatum*, 765.
rigidiuscula on cacao, 1471, 3070c.
uniseptata on *Paphiopedilum callosum*, 2739.
umellia sinensis, see Tea.
undida albicans, antagonism of antibiotic from, to *Rhizopogon roseolus* and *Tricholoma saponaceum*, 1764.
krusei on lemon, 2720.
anna, *Ascochyta cannae* on, in U.S.S.R., 2732.
mosaic virus on *Canna* in U.S.S.R., symptoms of, 1150.
annabis sativa, see Hemp.
antaloupe (*Cucumis melo* var. *cantaloupina*), *Erysiphe cichoracearum* on, genetics of resistance to, 2944; var. react. to, 715.
-, *Fusarium roseum* and *F. solani* on, in U.S.A., 2582.
-, *Pseudoperonospora cubensis* on, var. react. to, 715.
-, watermelon mosaic virus 1 on, var. react. to, 715.
-, — — — 2 on, in U.S.A., not distinct from cucurbit latent virus, 2941.
antharellus infundibuliformis virus disease, 3057.
apsella bursa-pastoris, *Arabis* mosaic virus on, transmission of, by seed, 3508.
- —, beet mild yellows virus on, causing mild vein clearing, 1708.
apsicin, effect of, on growth and virulence of *Agrobacterium tumefaciens*, 1755.
apsicum, alfalfa mosaic virus on, in Hungary, 1744e.
-, *Alternaria capsici-annui* on, control, 720.
-, — *porri* on, factors affecting, 3069.
-, — *tenuis* on, in U.S.A., 1370; study on, 1370.
-, *Botrytis cinerea* on, control, 720.
-, *Cercospora capsici* on, in Ivory Coast, morphology and symptoms of, 85.
-, *Colletotrichum nigrum* on, control, 720.
-, *Corynebacterium michiganense* on, var. and spec. react. to, 1972.
-, cucumber mosaic virus on, 1745i; in Bulgaria, 2100; *India, 3293; susceptibility to, 2648; transmission of, by vectors, 1739; var. react. to, 1739.
-, — — — str. on, in Hungary, 1744e.
-, *Deuterophoma tracheiphila* on, effect of, on, 1883a.
-, effect of fungi on respiration of, 751.
-, *Fusarium oxysporum* on, control, 720.
-, — *solani* on, 1016.
-, *Glomerella cingulata* on, in Vietnam, 980c; control, 720.
-, inhibition of potato virus X ring spot str., by extracts of, 470a; of radish mosaic virus by extracts of, 471.
[*Capsicum*], *Macrophomina phaseoli* can infect, 196.
— mosaic virus on *Capsicum*, effect of, on chlorophyll, 3295.
—, *Phoma solanicola* on, control, 720.
—, *Phytophthora capsici* on, in Italy, 2949; *Trinidad, 2351.
—, — *drechsleri* on, studies on, 1221.
*—, — *nicotianae* var. *parasitica* on, in Rhodesia, 2588a.
—, pipecolic acid content in relation to disease resistance, 2158.
—, potato virus Y on, resistance to, 2648.
—, *Pseudomonas solanacearum* on, 280; in Bulgaria, penetration of, 2594.
—, — *syringae* on, 1530.
*—, — — var. *capsicicola* on, biochemistry, morphology and symptoms of, 2026.
—, *Pythium debaryanum* on, control, 2027.
—, *Sclerotium rolfsii* on, susceptibility to, 1810.
—, *Sirophoma capsici* on, control, 720.
—, *Stemphylium botryosum* f.sp. *capsicum* on, distinction of, from *Pleospora herbarum* and *S. solani*, 3659.
—, *Stemphylium solani* on, in Ivory Coast, morphology and symptoms of, 85.
—, stolbur virus on, in Bulgaria, 2100; symptoms of and transmission of, by vectors, 1451.
—, tobacco etch virus on, resistance to, 2648.
—, — leaf curl virus str. on, 3568.
—, — mosaic virus on, in Bulgaria, 1044; Hungary, 1744e; control and incidence of, 1044; resistance to, 2648; symptoms of, 1044.
— virus diseases in Bulgaria, 2100; Venezuela, 3306.
—, *Xanthomonas vesicatoria* on, in Hungary, 1743t; antibiotic effect of bacterium S–9 on, 2330; effect of, on loss of electrolytes from leaves of, 2950; factors affecting stomatal activity and susceptibility, 3318; var. react. to, 1743t.
Captafol against *Peronospora parasitica* on cabbage, 3616.
Captan against *Alternaria* on tomato, 2344; *Botrytis allii* on onion, 380; *B. cinerea* on grapevine, 397l, 3173; on persimmon, 2786; on raspberry, 2219; on strawberry, 3163; *Bremia lactucae* on lettuce, 1375s; *Colletotrichum lagenarium* on cucumber, 971; *Cylindrosporium maculans* on mulberry, 1630; *Elsinoe veneta* on raspberry, 1377n; *Fusarium* on grapevine, 3173; on pea, 3265; *F. roseum* on *Coronilla varia*, 541; *F. roseum* and *F. solani* on cantaloupe, 2582; *Gibberella fujikuroi* on *Freesia*, 390g; *Gnomonia leptostyla* on walnut, 2280; *Peronospora parasitica* on cabbage, 1375s; *Pezicula malicorticis* on apple, 1185; *Phomopsis diospyri* on persimmon, 2786; *Plasmopara viticola*, 2792; *Pyrenochaeta terrestris* on tomato, 391e; *Pythium* on pea, 3265; *Rhizoctonia* on grapevine, 3173; pea, 3265; *Sclerotinia fructigena* and *S. laxa* on plum, 1615; *Sclerotium rolfsii* on *Eleusine coracana*, 1113o; *Septoria lycopersici* on tomato, 1377i; *Taphrina deformans* on peach, 2529; *Trichometasphaeria turcica* on maize, 1113a; *Xanthomonas juglandis* on walnut, 2280; as seed treatment for groundnut, 2019; for maize, 1113e; for pine, 1319; as soil disinfectant, 391e, 967, 2356g.
—, effect of, on *Aspergillus flavus* and *A. niger* on groundnut, 2016; on *Botrytis cinerea* on

strawberry, 2532, 3301a; on *Macrophomina phaseoli* on groundnut, 2014; on *Neurospora crassa*, 3689; on strawberry pollen, 3301.
[Captan], fungitoxicity of, in soil, 2985.
— residues, methods for analysing, 390r.
— in combination against *Colletotrichum* on pine, 919b; *Peronospora destructor* on onion, 965; *Podosphaera leucotricha* on apple, 2198; *Sclerotinia minor* on radish, 2356d; *Venturia inaequalis*, 250, 2198.
— — — as seed treatment for groundnut, 2019.
— 50W against *Cylindrosporium* on *Rhus trilobata* and *Sheperdia argentea*, 335; damping-off of pine and spruce, 341.
— —, effect of, on germination of pine and spruce, 2857.
— — versus thiram SF–75, 341; zineb 50W, 341.
Caragana arborescens, *Septoria caraganae* on, in Canada, 643d.
— — virus disease in Poland, effect of plant sap on properties and symptoms of, 1975.
Caraway (*Carum carvi*), *Septoria umbelliferarum* on, in U.S.S.R., 1464.
Carbadin against *Botrytis allii* on vegetables, 1995; *Sclerotinia linhartiana* on quince, 397h; vegetable diseases, 1995.
Carbaryl against vectors of rice tungro virus, 1537e.
Carbatene against *Peronospora destructor* on onion, 2929.
Carbathion against *Fusarium* on cucumber, 973; on pine, 2293; *Plasmodiophora brassicae* on cabbage, 1336, 2895; as soil disinfectant, 639, 1336.
Carbolineum against *Phragmidium tuberculatum* and *Sphaerotheca pannosa* var. *rosae* on rose, 1164.
Carbon, effect of, on growth of fungi on wood pulp, 936; on spore germination of *Glomerella cingulata*, 433.
— dioxide, effect of, on germination of chlamydospores of *Fusarium solani* f.sp. *phaseoli* in soil, 2911.
Carboxylic acids, effect of, on *Ceratocystis ulmi* on elm, 1307.
Cardamom, greater, mosaic streak virus on *Amomum subulatum*, 2106.
Carica papaya, see Papaw.
Carnation (*Dianthus caryophyllus*), *Alternaria dianthi* on, in Bulgaria, 3464.
—, A manual of production of, 835.
—, *Armillaria mellea* on, in U.S.A., symptoms of, 2734.
—, *Botrytis cinerea* on, effect of polythene bags on and factors affecting germination of conidia of, 1151.
— chlorosis, types of, 1152.
—, *Corticium solani* on, comparison of 2 strs. of, 222.
—, *Didymellina dianthi* on and diseases of, in Bulgaria, 3464.
—, effect of low levels of ozone on, 3465.
(?)— etched ring virus on carnation in the Netherlands, 3459a.
—, *Erwinia chrysanthemi* on, in U.S.A., 2498; symptoms of, 1904, 2498.
—, *Fusarium avenaceum* on, 3126.
—, — *oxysporum* f.sp. *dianthi* on, in Bulgaria, 3464; France, 3129; Netherlands, 3459a; control, 3464; effect of difolatan on, 2356h; examination of in fluorescent light, 3129; var. react. to, 3459a.
[Carnation, *Fusarium*] *redolens* on, in Netherlands, 3459a.
—, — — f.sp. *dianthi* on, factors affecti 3069; pathogenicity of, 1c.
—, — *roseum* on, in Bulgaria, 3464; It 2356e; control, 1582, 2356e, g, 3464.
— latent virus on carnation, elimination of meristem-tip culture, 3462; serology 1048.
— — — on *Dianthus barbatus*, 3462.
— mottle virus on carnation in the Netherlan 3459a; elimination of, by meristem tip c ture, 3462; serological detection of, 217
— — — on *Dianthus barbatus*, 3462.
— — — str. on carnation, differentiation from strs. on other hosts and physical prop ties of, 3463.
—, *Pectobacterium parthenii* var. *dianthicola* in France, examination of in fluores light, 3129.
—, *Phytophthora* on, in Iran, 3063b.
—, *Pseudomonas caryophylli* on, in Fr 3129; *Hungary, 2497; examination of fluorescent light, 3129; factors affecti 1583; symptoms of, 2497.
— ring spot virus on carnation, eliminatio by meristem-tip culture, 3462.
— — — — — on *Dianthus barbatus*, 221, 2462
—, sowbane mosaic virus carnation 689 str. relationship of, to *Chenopodium* star mo str., 390i.
— tipburn, effect of oxidant level of air on, 2
—, *Uromyces dianthi* on, in Bulgaria, 34 Rumania, 397f; control, 397f, 3464; effect on, 1903a; on germination of uredospo 1903b; factors affecting, 397f, 3464; v react. to, 1903a.
— vein mottle virus on carnation, elimina of, by meristem-tip culture, 3462.
— — — — on *Dianthus barbatus*, 3462.
—, *Verticillium cinerescens* on, in Fra 3129; Italy, 2356e; control, 2356e, 31 effect of difolatan on, 2356h; spread 390b; examination of, in fluorescent lig 3129.
— 689 virus, *Chrysanthemum* virus serolog ally related to, 390k.
— J–239 virus on carnation, resemblance of cauliflower and *Dahlia* mosaic viruses, 3
— virus diseases in the Netherlands, 3459a
Carpinus betulus, see Hornbeam.
Carrot (*Daucus carota*), *Alternaria dauci* on, *U.S.S.R., 3066; factors affecting, 3612.
—, ash yellows-type virus can infect, 2590i.
*—, *Centrospora acerina* on, in N.Z., 980d.
—, *Ceratocystis fimbriata* on, selective isolati of, 1446.
—, *Cercospora carotae* on, in *Chile, 17 factors affecting, 3612; morphology a symptoms of, 1733.
— diseases, causes, occurrence, symptoms a transmission of, 3613.
—, *Erwinia carotovora* on, 3315; in Chile, m phology and symptoms of, 1733.
— motley dwarf virus, spread of, 2584e.
— mottle virus, properties of, 3301i.
—, *Phoma rostrupii* on, effect of thiram 2936.
—, *Pythium aphanidermatum* on, inhibition by phenolic compound, 382; mechanism resistance to, 1359.
—, *Rhizoctonia carotae* on, infested stora crates as source of inoculum, 2341.

rrot], *Septoria dauci* on, in U.S.S.R., 1464.
Stemphylium radicinum on, nutritional study of, 2342; persistence of, in soil, 299i.
storage disorders, factors affecting, 1005.
rthamus, Colletotrichum, Corticium solani, and *Macrophomina phaseoli* on, in Colombia, 1939.
tinctorius, see Safflower.
rum carvi, see Caraway.
rya pecan, see Pecan.
ssava (*Manihot utilissima*) mosaic virus on cassava, electron microscopy of, 724.
vein mosaic virus on cassava, spheroidal particles associated with, 725.
, *Xanthomonas manihotis* on, aetiology of, 726.
istanea, see Chestnut.
istilleja, Peridermium filamentosum on, differentiation of other *P.* races from, 2287.
astor, see *Ricinus communis*.
asuarina equisetifolia, Ganoderma lucidum and *Polyporus gilvus* on, in U.A.R., 3580.
ationic compounds, effect of, on *Erysiphe graminis* on oats, 1103.
attleya, Botrytis cinerea on, control, 2504.
-, tobacco mosaic virus orchid str. on, effect of, on, 3136.
Cauliflower (*Brassica oleracea*), *Albugo candida* on, in Rhodesia, 2359a.
-, *Corticium solani* on, in Poland, insect damage associated with, 3620.
-, *Geotrichum* on, in Poland, 3620.
- mosaic virus, properties of, 684, 2308.
- — —, resemblance of carnation J–239 virus to, 390i.
- — — on cabbage, 2572.
- — — on Cruciferae, 2894.
- — — on horse radish, 1704.
-, *Peronospora parasitica* on, control, 1375t.
-, *Plasmodiophora brassicae* on, in Canada, testing for resistance to, 937.
-, yeasts on, in Poland, 3620.
CDM against *Erysiphe graminis* on cereals, 1375j.
Cedar (*Cedrus*), diseases in U.S.S.R., 1314.
Celcure as timber preservative, 678.
Celeriac, see Celery.
Celery (*Apium graveolens*), *Arabis* mosaic virus on, symptoms of, 3299d.
-, boron deficiency in, var. reaction to, 3291.
-, California aster yellows virus on, 3611.
-, *Cercospora apii* on, estimating losses caused by, 2654.
-, cucumber mosaic virus on, 3611.
-, *Erwinia carotovora* can infect, 3315.
-, *Fusarium oxysporum* f.sp. *pisi* not infecting, 695.
-, lucerne mosaic virus on, 3611.
-, manganese toxicity in, in Irish Republic, 711.
-, *Septoria apiicola* on, in U.S.S.R., 1464; causing leaf spot, 2937; control, 2023; detecting viable spores of, in seed, 1734; factors affecting, 3651; overwintering of, 3299f.
-, strawberry latent ring spot virus on, symptoms of, 3299d.
-, virus on, unidentified, 3299d.
-, Western mosaic virus on celery, partial purification, properties and serology of, 710a; serodiagnosis of, 710b.
Cellulose, microfungi on, stud n 2988.
Celosia argentea as indicator for potato virus Y strs., 1948.
Cenangium ferruginosum on pine, 346.
Centaurea, Uredinales on, in Iraq, 46b.
Centranthus, Phoma can infect, 2357d.
**Centrospora acerina* on carrot, 980d.
— — on pansy, 841.
Cephaelis ipecacuanha, Cercospora on, damping-off of, *Mycena citricolor*, and *Rosellinia* on, in Nicaragua, 3175.
Cephaloascus fragrans on timber, 360.
Cephalosporium acremonium on maize, 2476.
— *cucumerinum* and *C. curtipes* on cucumber, 2581.
— *diospyri* on persimmon, 1681.
— *gramineum*, antagonism of *Fusarium culmorum* and *Trichoderma* to, 3027.
— — on wheat, see Wheat.
— *gregatum* on soybean straw, 3634.
— *sacchari*, study on enzymes of, 617.
*— *zonatum* on coffee, 1560.
Ceratitis capitata, Aspergillus tamarii on, mode of action of, 2040.
Ceratocystis araucariae on timber, 1990.
*— *bicolor* on spruce, 646.
— *coerulescens*, analysis of acetylated alcohols and other steam-volatile products in, 2064.
— *europhioides* on spruce, 646.
— *fagacearum*, cellulose production by, 1789.
— —, nuclear division in, 3376.
— — on oak, see Oak.
— —, sexual reproduction of, in culture, 330.
— *fimbriata*, biology of, 766.
— —, cellulose production by, 1789.
— —, *C. moniliformis* distinct from and *C. variospora* synonym of, 766.
— —, C.M.I. description of, 1035a.
— —, morphology of, 766.
— — on almond and apricot, 3496.
— — on aspen, 2271a.
— — on cacao, 94, 781a, 1470a.
— — on carrot, 1446.
— — on peach, 3496.
— — on prune, 3496.
— — on sweet potato, 2248, 2819, 3547.
— *minor*, effect of pH of media and temp. on growth of, 361.
— *moniliformis*, C.M.I. description of, 1035a.
— —, distinct from *C. fimbriata*, 766.
— —, hosts of, 1035a.
— — on timber, 1990.
— *montii* on pine, 3252.
— *olivacea*, cellulose production by, 1789.
— *paradoxa*, C.M.I. description of and hosts of, 1035a.
— — on oil palm, 596, 3180.
— — on pineapple, 3513.
— — on sugarcane, see Sugarcane.
— *penicillata* on spruce, 646.
— *pilifera*, effect of pH of media and temp. on growth of, 361.
— *populina* on aspen, 1687, 2271a.
— *roboris* on oak, 329.
— *tremulo-aurea* on aspen, *646, 2271a.
— *ulmi*, cellulose production by, 1789.
— — on elm, see Elm.
— —, technique for labelling with C, 653.
— *variospora*, synonym of *C. fimbriata*, 766.
Cercocarpus montanus, effect of H_2O_2 on seeds of, 1980.
Cercospora antirrhini in soil, 1149.
— — on *Antirrhinum* and *Maurandia*, 1149.

[*Cercospora*] *apii* on celery, 2654.
— *beticola*, factors affecting sporulation of, 1377f.
— — on beet, see Beet.
— — on vegetables, 2893.
— *bunchosiae* on *Malpighia punicifolia*, 2534.
— *canescens* on bean, 1381k.
— (?)— on *Lablab niger*, 2032b.
— *capsici* on *Capsicum*, 85.
*— *carotae* on carrot, 1733, 3612.
— *citri-grisea* on citrus, (?)817, 2960c.
— *coffeicola*, hosts of, 2169.
— — on coffee, see Coffee.
— — on *Ricinus communis*, 399d.
— *cruenta* on bean, 1381k.
— *cryptomeriae* on Coniferae and *Sequoia gigantea*, 1327.
— *dolichi*, resemblance of *C.* sp. on *Lablab niger* to, 2918.
— *elaeidis* on oil palm, 595, 3180.
— *fuligena* on tomato, 85.
— *gigantea* on citrus, 2960c.
— *gossypina* on cotton, 532.
— *insulana* on *Limonium sinuatum*, 3470.
— *kikuchii* on soybean, *1381g, 1939.
— *koepkei* on sugarcane, 1658.
— *lhuillieri* on cotton, 1573.
*— *malayensis* on *Hibiscus ficulneus*, 975.
— *medicaginis* on *Chenopodium album*, *Datura fastuosa*, and lucerne, 3143.
— *nicotianae* on tobacco, 885, 2831.
— *oryzae* on rice, 179, 3065, *3107.
*— *pini-densiflora* on pine, 2359a.
— *ricinella* on *Ricinus communis*, 1939.
— *rubrotincta* on cherry, 2759.
— *sequoiae*, *C. cryptomeriae* synonymous with, 1327.
— — on *Juniperus scopulorum* and *J. virginiana*, 2271d, 2862.
— *sesami* on sesame, 1381h, 1939.
— *sojina* on soybean, 2921.
— *sorghi* on sorghum, 1113l.
*— *typhoides* on *Pennisetum typhoides*, 1531.
— *zebrina* on clover and *Medicago*, 1168b.
Cercosporae in Japan, 2620.
Cercosporella herpotrichoides, effect of chlorocholinchloride on, 1093.
— —, factors affecting sporulation of, 1377f.
— — in soil, 2584n.
— —, interaction of near-UV light and temp. on sporulation of, 1017.
— — on barley, 783, 1819.
— — on cereals, see Cereals.
— — on grasses and oats, 2357h.
— — on rye, 783.
— — on wheat, see Wheat.
Cercosporidium personatum, nov. comb. for conidial *Mycosphaerella berkeleyi*, 450.
— *punctum*, hosts and nov. comb., 450.
Cereals, barley yellow dwarf virus on, in N.Z., 2659; U.S.A., 782; transmission of, by vectors, 2659; vector infectivity levels, 782.
—, *Bromus* mosaic virus on, 1167.
—, *Calonectria nivalis* on, in Scandinavia, 481; control, 1077; determination of, 1476.
—, *Cercosporella herpotrichoides* on, in Austria, 2030; Denmark, 730b, 1477; Hungary, 1743o; control, 1375f; effect of agrotechnique on incidence of, 1743o; of direct drilling on, 1375f; factors affecting, 2030; flame burning ineffective against, 2584l; histology of penetration by, 2586c; masking of symptoms of *Cochliobolus sativus* by, 14[illegible] severity of, 2030.
[Cereals], *Cladosporium herbarum* on, Austria, severity of, 2030.
—, *Cochliobolus sativus* on, in Denmark, 14[illegible] control, 1077; masking of symptoms of, *Cercosporella herpotrichoides* and *Ophiob[illegible] graminis*, 1477.
—, *Corticium solani* on, flame burning ineff[illegible]tive against, 2584 l.
—, diseases of, in Poland, 2956; epidemiolc of, 1375d; report on, 2956; review of breedi for resistance to, 1814.
—, Erysiphales on, electron microscopy 2585i.
—, *Erysiphe graminis* on, in England, 174[illegible] Hungary, 1404, 1743k, p; U.S.S.R., 3[illegible] C.M.I. description of, 1035b; contr 1375j, 1404, 1743j, k, 3407; effect of be[illegible] midazole on resistance to, 1743p; facto affecting, 3407; virulence of, 3407.
—, *Fusarium* on, in Denmark, 730b.
—, — *roseum* on, control, 1077.
—, — — f.sp. *cerealis* 'Culmorum' on, Pacific Northwest, symptoms of, 1818.
—, *Gibberella avenacea* on, in Pacific No[illegible] west, 1818.
—, — *zeae* on, in Scandinavia, 481.
—, *Leptosphaeria nodorum* on, in the Neth[illegible] lands, 1817; control, 1077.
—, mycorrhiza of, in Poland, 1412.
—, northern cereal mosaic virus on, isolati[illegible] and transmission of, by vectors, 3071.
—, *Ophiobolus graminis* on, in Denman[illegible] 730b, 1477; Hungary, 1743o; Kenya, 2358[illegible] aerial photography of, 392d; control, 137[illegible] effect of agrotechnique on incidence [illegible] 1743o; of direct drilling on, 1375f; of pr[illegible] longed successive cultivation on, 1375[illegible] flame burning ineffective against, 2584[illegible] masking of symptoms of *Cochliobolus sativ[illegible]* by, 1477.
—, *Puccinia* on, forecasting of, 1808.
—, — *coronata* on, apparatus for inoculati[illegible] leaves with urediospores of, 2440.
—, — *graminis* on, 2496; in Austria, 181[illegible] Denmark, 2962; Europe, 1081; Iran, 3063[illegible] 3076; barberry as source of infection fc[illegible] 2962; control, 1816; epidemiology of, 108[illegible] factors affecting, 1816.
—, — *recondita* on, in Iran, 3076.
—, — *striiformis* on, in Iran, 3063a, 3076.
—, *Pyrenophora avenae* on, control, 1077.
—, — *graminea* on, in Scandinavia, 481.
—, — *teres* on, control, 1077.
—, *Tilletia caries* on, in Hungary, 140[illegible] Scandinavia, 481.
—, Uredinales on, in the world, 986b; electr[illegible] microscopy of, 2585i.
—, Ustilaginales on, regressive changes in, [illegible] tissues of, 3013.
—, *Ustilago* on, inoculation of, 2586d; ph[illegible]logenetic relationships between species o[illegible] 482; production of substance toxic t[illegible] 2586d.
—, — *avenae* on, in Scandinavia, 481.
—, virus diseases of, control, 64, 1475.
Ceredon as seed treatment for apple, 1377m.
Ceresan against *Typhula incarnata* on barle[illegible] 2691; as seed treatment for *Capsicum*, 72[illegible] for rye, 146; sorghum, 3098.
—, effect of, on *Ustilago avenae* on oats an[illegible] *U. hordei* on barley, 1853.

eresan], inhibition of *Typhula* on *Ficus pumila* by, 543.
in combination as seed treatment for groundnut, 2019.
red as seed treatment for groundnut, 2019.
wet against *Leptosphaeria salvinii* on rice, 3336.
—, inhibition of *Trichometasphaeria turcica* on maize by, 508.
— — in combination as seed treatment for rice, 1113s; for sesame, 593.
erosipha forbesi transmitting strawberry crinkle virus, 265.
chaconine, fungitoxicity of, 3193.
haetomium cochlioides, loss of antagonism to *Fusarium solani* f.sp. *phaseoli* by, 2910.
— *globosum* as test fungus for plastics, 998.
— —, loss of antagonism to *Fusarium solani* f.sp. *phaseoli* by, 2910.
— — on maize, 1524.
— — on tomato seed, 1302.
— — on wood pulp, 936.
— *olivaceum* on mushroom, 727.
— *trilaterale* on stored rice, 520.
Chaetosiphon fragaefolii transmitting strawberry crinkle virus and strawberry mild yellow edge virus, 1624.
— *jacobi* transmitting strawberry crinkle virus, 1928; strawberry mottle virus, 1625.
Chainia isolate No. 3047, production of chainin by, 2386.
Chainin, antimicrobial spectrum and physicochemical properties of, 2386.
Chamaecyparis lawsoniana, *Phytophthora lateralis* on, control, 3466.
— *nootkatensis*, fungi on, production of 1-hydroxy-3-methylanthraquinone by, 3592.
Chard (*Beta vulgaris* var. *cicla*), beet yellow wilt virus on, 2312.
Cheiranthus cheiri, see Wallflower.
Chemagro 4497 against *Urocystis cepulae* on onion, 3649.
— 2635, fungitoxicity of, in soil, 2985.
Chenopodiaceae, passion fruit woodiness virus can infect, 271.
Chenopodium as indicator for potato viruses X and Y, 3536; for stone fruit viruses, 1743f; for watermelon mosaic virus 2, 3652.
—, barley viruses A_1 and B_1 on, react. to, 2135.
—, inhibition of turnip mosaic virus Japanese str. by sap of, 468.
—, *Iris* mosaic virus on, 2183.
—, tobacco mosaic virus can infect, 1052.
— *album*, barley stripe mosaic virus on, 3427.
— —, bean yellow mosaic virus on, in Bulgaria, 1460.
— —, *Cercospora medicaginis* on, (?)source of inoculum for, 3143.
— —, *Peronospora farinosa* on, *P. farinosa* f.sp. *chenopodii* proposed for, 1039.
— —, radish enation mosaic virus on, symptoms of, 2309.
— —, strawberry mottle virus can infect, 1625.
— —, watermelon mosaic virus 2 on, effect of on, and transmission of, 3652.
— *amaranticolor*, apple virus on, resemblance of symptoms of, to apple chlorotic leaf spot virus, 1177; transmission of, by sap, 469.
— — as indicator for carnation mottle virus, 2179; cherry destructive canker virus, 1177.
— —, barley stripe mosaic virus on, 3427.
— —, *C. hybridum* mosaic virus on, electron microscopy of, 467.
[*Chenopodium amaranticolor*], citrus infectious variegation virus on, transmission of mechanically, 2715.
— —, cowpea mosaic virus on, electron microscopy of, 467.
— —, cucumber mosaic virus on, effect of beet sap on, 689.
— —, — — — str. on, 721.
— —, grapevine fanleaf virus on, transmission of, by sap, 469.
— —, *Hippeastrum* mosaic virus on, 540.
— —, pear viruses on, transmission of, by sap, 469.
— —, radish enation mosaic virus on, symptoms of, 2309.
— —, strawberry mottle virus can infect, 1625.
— —, tobacco mosaic virus on, effect of DMSO on, 1664.
— —, tobacco mosaic virus str. on, 2740.
— —, — necrosis virus on, effect of UV light on, 2584a.
— *ambrosioides*, bean yellow mosaic virus can infect, 1460.
— —, *Cercospora coffeicola* on, sporulation of and survival of, in soil debris, 2169.
— *botrys*, as indicator for potato virus Y strs., 1948.
— — and *C. capitatum*, bean yellow mosaic virus can infect, 1460.
— *foetidum* as indicator for plum pox virus, 2357i.
— —, plum pox virus on, 13771; transmission of, by sap, 2763.
— *hybridum* mosaic virus on *C. amaranticolor*, 467.
— *murale*, see Sowbane.
— *quinoa*, apple latent virus on, 3487.
— —, — virus on, resemblance of symptoms of, to apple chlorotic leaf spot virus, 1177; transmission of, by sap, 469.
— — as indicator for apple chlorotic leaf spot virus, 1600; for cherry destructive canker virus, 1177; for grapevine fanleaf virus, 2537.
— —, barley stripe mosaic virus on, 3427.
— —, bean yellow mosaic virus can infect, 1460.
— —, belladonna mottle virus can infect, 2649.
— —, cherry chlorotic-necrotic ring spot virus not infecting, 255.
— —, — Pfeffinger virus on, advance warning test of, 2357i.
— —, citrus infectious variegation virus on, transmission of mechanically, 2715.
— —, grapevine fanleaf virus on, transmission of, by sap, 469.
— —, pea false leaf roll virus can infect, 1714.
— —, pear viruses on, transmission of, by sap, 469.
— —, strawberry mottle virus can infect, 1625.
— —, use of, in detecting seed transmission of lettuce mosaic virus, 383.
— *strictum*, watermelon mosaic virus 2 on, effect of on, and transmission of, 3652.
Cherry (*Prunus avium* and *P. cerasus*), *Agrobacterium tumefaciens* on, control, 3158, 3504; effect of trizone on, 3504.
—, apple chlorotic leaf spot virus on, penetration of, 572.
—, *Blumeriella jaapii* on, control, 3302c; factors affecting, 2031f; forecasting of, 1808.
—, boron deficiency in, in U.S.A., causing rosette disease, 3503.
—, *Botrytis* on, control, 1925.

[Cherry], *Cercospora rubro-tincta* on, in Kashmir, 2759.
— chlorotic ring spot virus, serology of, 1194.
— destructive canker virus in Czechoslovakia, hosts of, indicators for, and transmission of, by pollen, 1177.
*— disease, resemblance of symptoms of, to cherry Pfeffinger disease and cherry sickle leaf viruses, 397b.
—, effect of fluorine on, 248.
— European rusty mottle virus on cherry in England, incidence of, 2530.
—, fungi on, list and review of, 247.
— Lambert mottle virus on cherry, *Prunus* necrotic ring spot virus associated with and separation of, 2216.
— leaf roll virus on cherry, testing for resistance to, 2217.
— — — — on rhubarb, 3294.
— little cherry virus on cherry in England, 2355g, 2530; incidence of, 2530.
— mottle leaf virus in U.S.A., comparison of plum pox virus with, 2210a.
— necrotic line pattern virus on cherry in England, incidence of, 2530.
— — ring spot virus, serology of, 1194, 2651.
— — — — —, see also Peach necrotic ring spot virus and *Prunus* necrotic ring spot virus.
— — rusty mottle virus on cherry, incidence of, 2530.
—, *Penicillium expansum* on, control, 1925.
— Pfeffinger disease, symptoms of cherry disease in Rumania resembling, 397b.
— — virus on *Chenopodium quinoa*, 2357i.
— — — on tobacco, 1193.
—, prune dwarf virus on, in England, 2530; Japan, 2212; effect of, in combined infections, 2355g; identification of, 2212; incidence of, 2530.
—, *Prunus* necrotic ring spot virus on, in England, 2530; U.S.S.R., 1195; effect of, in combined infections, 2355g; on yield, 2530; incidence of, 2530; non-occurrence of, on weeds in vicinity, 1621; serological demonstration of, 568; spread of and transmission of, by pollen, 3951.
—, *Pseudomonas cerasi* on, in Crimea, 857.
—, — *mors-prunorum* on, in Ireland, 2771; Switzerland, 1206, 1926; biology of, 1926; control, 1206, 1926, 1375o, 2771; hosts of, 1926; stability of, 2758; symptoms of, 1926, 2208.
—, — — cherry str. on, effect of addition of plum str. to inoculum, 2355a.
—, — *syringae* on, resemblance of strs. of, to *P. mors-prunorum*, 2355b.
—, raspberry ring spot virus on, testing for resistance to, 2217.
— rasp leaf disease on cherry in U.S.A., nematodes associated with, 3502.
— — — virus on peach, 1616.
— replant disease control, 1599.
—, *Rhizopus stolonifer* on, 3694; control, 1925.
— ring mosaic virus in U.S.S.R., description, incidence and symptoms of, 558.
— — mottle virus on cherry, incidence of, 2530.
—, rose mottled mosaic virus on, transmission of mechanically, 2765.
— rosette disease in U.S.A., boron deficiency causing and (?) cucumber mosaic virus str. associated with, 3503.
— rugose mosaic virus on cherry in England, incidence of, 2530.
[Cherry], *Sclerotinia* on, penetration by, 235
—, — *laxa* on, in Hungary, 1404.
— sickle leaf, symptoms of cherry disease Rumania resembling, 397b.
— spur virus on cherry, reaction to, 401c.
—, *Taphrina cerasi* on, in N.S.W., 2032d.
—, tobacco mosaic virus on, penetration of,
*—, tomato bushy stunt virus on, in Cana differentiation of, from type str., 1620, 24
—, *Valsa leucostoma* on, infection sites of, 8
—, *Venturia cerasi* on, in Rumania, 577.
— virus diseases, testing for, 246, 3501.
— white spot virus in U.S.S.R., descriptio incidence, and symptoms of, 558.
*— (sour) yellows virus on cherry in Rumani 397b.
— Laurel (*Prunus laurocerasus*), *Valsa cinc* on, in Czechoslovakia, biology and severi of, 2502.
— -plum, see *Prunus cerasifera*.
Chervil (*Anthriscus cerefolium*), *Anthrisc* yellows virus on, 3301 l.
Chestnut (*Castanea*), *Endothia parasitica* on, Greece, 2274; Yugoslavia, incidence of, 22
—, *Lactarius* forming mycorrhiza on, 424.
—, *Phytophthora cambivora* and *P. cinnamon* on, in Greece, morphology and symptoms o 2274.
Chick pea, see *Cicer arietinum*.
Chilli, see *Capsicum*.
China aster, see Aster.
Chinosol against *Pythium ultimum* on parsley 714.
Chitin, soil micro-organisms on, ecology o 3024b; selective isolation of, 3024a.
Chives (*Allium schoenoprasum*), *Pyrenochaet terrestris* on, 2119.
—, *Puccinia allii* on, in Hong Kong, 3668c.
Chloramphenicol, effect of, on growth an mitochondrial structure of *Pythium ultimum* 2059; on growth, pigmentation and io absorption in maize, 2045; on *Xanthomona campestris*, 1338.
Chlorine against *Fusarium roseum* and *F. solan* on cantaloupe, 2582.
2-chloro-4-(1′1′3′3′ tetramethyl) butyl-6-nitro phenol, systemic activity of, against *Erysiph polygoni* on bean, 2598.
Chlorocholinchloride against *Cercosporella her potrichoides* on wheat, 2678.
—, effect of, on *C. herpotrichoides*, 1093; o damping-off of barley and wheat, 1497; o fungi on wheat, 2461; on *Fusarium culmorum* on wheat, 1093; on *Leptosphaeria nodorum* on wheat, 1093, 2679.
2-chloro-4-(hydroxymercuri) phenol in combin ation against *Fusarium roseum* on turf, 551.
Chloroneb against *Corticium solani* on cotton 2597.
—, effect of, on *Sclerotinia homoeocarpa* o *Agrostis palustris* and *A. tenuis*, 2744.
1-chloro-2-nitropropane as soil disinfectant 1718.
Chlorophenol against *Corticium solani* o potato, 1376b.
Chloropicrin against *Fusarium oxysporum* f.sp *pisi* on pea, 951.
— as soil disinfectant, 859, 951, 1026a, 1599 1675, 3127.
—, effect of, on *Arabis* mosaic virus on straw berry, 859.
—, evaluation of, as soil disinfectant, 17.
— in combination as soil disinfectant, 3074.

Chlorpropham, effect of, on *Botrytis tulipae* on tulip, 1590.
Chlortetracycline, effect of, on aster yellows virus on *Chrysanthemum carinatum*, 3669b.
Chrysanthemum, Alternaria chrysanthemi on, C.M.I. description of, 3030.
—, *Ascochyta* on, control, 3131.
—, — *chrysanthemi* on, effect of light and UV light on, 24.
— aspermy virus on *Chrysanthemum*, incidence and symptoms of, 3130.
—, *Botrytis* on, effect of euparen on, 3131.
—, — *cinerea* on, effect of cold storage on, 836; of *Itersonilia perplexans* on damage caused by, 390e.
—, cucumber mosaic virus on, serological relationships of, 73.
—, *Fusarium oxysporum*+*Meloidogyne hapla* on, effect of, on severity of, 225.
— green flower virus serologically related to stolbur virus, 3526.
—, *Itersonilia perplexans* on, effect of, on damage caused by *Botrytis cinerea* on, 390e.
— leaf mottling virus on *Chrysanthemum*, incidence of and symptoms of, 3130; particles in, 390j.
—, *Mycosphaerella ligulicola* on, effect of leaf washings from, on infection by, 1905; hosts of and variation in virulence of, 1154.
—, *Oidium chrysanthemi* on, effect of euparen on, 3131.
—, *Puccinia horiana* on, in England, 837; *France, 226; the Netherlands, 3132a, b; control, 837, 1580, 3131; incubation period of, 3132b; var. react. to, 226, 837, 1906; wind dispersal of, 3132a.
—, *Sclerotinia sclerotiorum* on, in U.S.A., 3467.
— stunt virus on *Chrysanthemum*, incidence and symptoms of, 3130.
— — — on *Senecio cruentus*, 2735.
—, tomato aspermy virus on, in the Netherlands, 3459b; effect of aluminium strips on, 1153; of, on seed production and non-transmission of, by seed, 72; serological detection of, 3459b; serological relationships of, 73.
—, *Verticillium alboatrum* on, infection, penetration and spread of, 2357k.
— virus, serological relationship of, to carnation 689 and sowbane mosaic viruses, 390k.
— — diseases, incidence and symptoms of, 3130; elimination of by meristem tip culture, 390o.
— — B on *Chrysanthemum* in the Netherlands, 3459b; effect of aluminium strips on, 1153; serological detection of, 3459b.
— *carinatum*, aster yellows virus on, effect of chlortetracycline on, 3669b.
— *cinerariifolium*, tomato aspermy virus on, danger of, to, 390k.
— *indicum*, tomato aspermy virus on, 224.
— *morifolium*, *Puccinia horiana* on, effect of heat treatment on, 1155.
— *viscidihirtum*, *Alternaria tenuis* on, in U.S.A., introduced from abroad, 2437.
Ciborinia foliicola on *Salix*, 643d.
Cicadulina bipunctella not transmitting rice transitory yellowing virus, 3102.
— *pastusae* transmitting barley yellow dwarf virus, 2961.
Cicer arietinum, alfalfa mosaic virus on, in Iran, 3262, 3280.
— —, *Ascochyta rabiei* on, in Iran, 3262; Turkey, 3281; U.S.S.R., 2009; control, 1595, 3281; effect of colloidal sulphur and thiram on, 2009; production of toxic metabolites by, 1769k.
[*Cicer arietinum*], bean yellow mosaic and cucumber mosaic viruses on, in Iran, 3280.
— —, *Fusarium* on, effect of phenthiuram and phenthiuram molybdate on, 1595.
— —, — ?*lateritium* f.sp. *ciceri* on, in Iran, mode of entry and symptoms of, 3280.
— —, *Mycosphaerella rabiei* on, in W. Pakistan, 2924.
— —, *Phyllosticta rabiei* on, breeding against and var. react. to, 375.
Cicinnobolus cesatii parasitizing *Podosphaera leucotricha* on apple, 563.
Cineraria (*Senecio cruentus*), *Chrysanthemum* stunt virus on, 2735.
Circulifer tenellus transmitting beet curly top virus, 893, 1674, 3214.
Cirsium arvense, bean yellow mosaic virus on, in Bulgaria, 1460.
Citron (*Citrus medica*), citrus exocortis virus on, transmission of, by dodder, 523.
—, — stubborn disease virus on, symptoms of, 187.
Citrullus vulgaris, see Watermelon.
Citrus (including all *Citrus* hosts), *Alternaria citri* on, 195; control, 2032l; effect of gamma radiation+SOPP on, 2717; factors affecting, 2718.
—, *Armillaria mellea* on, control, 1886.
*—, *Aspergillus fumigatus* on, in India, symptoms of, 2719.
—, (?)boron deficiency in, in Iran, 3063d.
— bud-union crease disorder in Mauritius and *Réunion, 1064b.
— cachexia virus on *Citrus macrophylla*, 1552.
— — -xyloporosis virus on citrus in France, Morocco, and Spain, distribution of, 814; study on, 186.
—, *Candida krusei* on, differentiation of, from and resemblance to *Geotrichum candidum*, 2720.
—, *Cercospora citri-grisea* and *C. gigantea* on, control, 2960c.
—, *Cladosporium oxysporum* on, in U.S.A., symptoms of, 1128.
— crinkle-scurf, effect of, on yield, 1557.
— crinkly leaf psorosis virus on citrus, fluorescence spectra of, 815.
— — — virus, lyophilization of, 2104.
— — — — on lemon, 2165b.
— — — — on orange, 2032m, 2165a, b.
— — — — on *Phaseolus aureus*, 2165c.
— cristacortis disease, 186; in Sicily, caused by sour orange stem pitting virus, 1882.
— decline in Brazil, symptoms of, 2168; India, Fe, Mn and Zn deficiencies associated with, 199.
—, *Deuterophoma tracheiphila* on, experimental reproduction of, 193.
—, *Diaporthe citri* on, 3114; in Trinidad, 817.
— dieback in India, Zn deficiency causing, 3444.
—, *Diplodia natalensis* on, 3114; effect of gamma radiation+SOPP on, 2717.
— diseases in France, Morocco, and Spain, 814; Trinidad, 817; U.S.A., 393f; distribution of, 814.
—, *Elsinoe fawcettii* on, method for predicting, 1073.
— endoxerosis, control, 1131.

[Citrus] exocortis virus in Italy, 1879.
— — — on citron, 523.
— — — on citrus, 186; in Aegean, 2163; France, 814; Japan, 2166*; Mauritius, 1064b; Morocco, 814; *Réunion, 1064b; Spain, 814; Trinidad, 817; colour test for, 2165; detection of, 1554; distribution of, 814; fluorescence spectra of, 815.
— — — on grapefruit, lemon and orange, 2165.
— — — on *Petunia* and Solanaceae, 523.
—, *Fusarium stilboides* on, in India, 818.
—, *Ganoderma applanatum* on, in Trinidad, 817.
—, *Geotrichum candidum* var. *citri-aurantii* on, effect of gamma radiation+SOPP on, 2717.
—, *Glomerella cingulata* on, in India, 818; effect of gamma radiation+SOPP on, 2717; of trace elements on, 2062; of vitamins on growth and sporulation of, 432.
— greasy spot in Trinidad, (?)*Cercospora citri-grisea* causing, 817.
— greening virus on citrus in India, 1877, 2167*; Mauritius and *Réunion, 1064b; Rhodesia, 3a; S. Africa, 524; distribution of, 1877; hosts of, 1877, 2167; symptoms of, 2167; transmission of, by bud and wedge grafting, 1877; by vectors, 2167.
— — — on orange, 524, 3441.
*—, *Guignardia citricarpa* on, in Kenya, 2a; Rhodesia, 1125; control, 1125, 1126, 1127; sources of inoculum of, 1125.
— impietratura virus on citrus in Aegean, 2163; Cyprus, 1123; France, Morocco and Spain, 814; distribution of, 814; fluorescence spectra of, 815; incidence of, 1881.
— — — on grapefruit, 188, 1123a, 1881.
— — — on lemon, 1123a.
— — — on orange, 1881, 3063d.
— infectious variegation virus, hosts of, 2715.
— — — —, lyophilization of, 2104.
— — — —, transmission of, mechanically, 2715.
— — — — on lemon, 2165b.
— — — — on orange, 2165a, b, 2716.
— — — — on *Phaseolus aureus*, 2165c.
— leaf mottle virus in the Philippines, transmission of, by vectors, 190.
— — — -yellows virus in the Philippines, causing decline, relationships of, and transmission of, by vectors, 1876.
—, lemon sieve tube necrosis virus on, in Aegean, 2163.
—, *Macrophomina phaseoli* on, in India, 196.
—, *Penicillium* on, control, 197.
—, — *digitatum* on, control, 3442, 3443; effect of gamma radiation+SOPP on, 2717; of ozone on, 2483; role of wounds in infection by, 1129.
—, — *italicum* on, 197; control, 3442; effect of gamma radiation+SOPP on, 2717; of ozone on, 2483.
— physiological gumming in Trinidad, 817.
—, *Phytophthora* on, in France, Morocco and Spain, distribution of, 814.
—, — *citrophthora* on, control, 1885; testing for resistance to, 2032j.
—, — *nicotianae* var. *parasitica* on, in Iran, 3063b; U.S.A., 192.
—, *Pseudomonas syringae* on, forecasting of, 1073.
— psorosis virus on citrus in the Aegean, 2163; Cyprus, 1123b; France, 814; *Mauritius, 1064b; Morocco, 814; *Réunion, 1064b; Spain, 814; Trinidad, 817; distribution of, 814; study on, 186.
[Citrus] Rio Grande gummosis in Trinidad, 81
—, *Sclerotinia sclerotiorum* on, in Italy, 525.
—, soil fungi associated with, in Libya, 191.
—, *Speira* spores on roots of, 1023.
— stem pitting virus on citrus in Italy, 81
France, Morocco and Spain, distribution o
814.
— — — — on orange, 816.
— storage disorders, 1745c, 2483.
— stubborn disease virus on citrus in Aegean
2163; Italy, 1880; France, Morocco an
Spain, distribution of, 814; hosts of an
probable identity of, 187.
— — — — on orange, 1880.
— — -greening complex, 186; in Cyprus
1123b.
— stylar-end rot control, 1131.
— tatter leaf virus, effect of supplements on
infectivity of, 2102.
—, *Thielaviopsis basicola* on, symptoms of
1884.
—, *Trichoderma viride* on, effect of gamma
radiation+SOPP on, 2717.
— tristeza virus on citrus, 186; in Corsica
1745b; Cyprus, 3113; Fiji, 2034a; France
814; India, 522; *Mauritius, 1064b; Mediterranean region, 1878; Philippines, 190, 1551
Morocco, 814; *Réunion, 1064b; Spain, 814
Trinidad, 817; Turkey, 1796; distribution of
814; hosts of, 522; indexing for detecting
carriers of, 3113; transmission of, by vectors
1551, 1796, 1878, 3113; use of indexed root
stocks against, 1745b.
— — — on *Citrus excelsa*, 3113.
— — — on *Citrus macrophylla*, 1552, 3113.
— — — on *Citrus mitis*, 3113.
— — — on kumquat, 2034a.
— — — on lemon, 1552.
— — — on lime, 2034a, 3113.
—, — seedling yellows virus complex in
Cyprus, 1123b; Philippines, 190; eradication
of, 1123b.
— variegation virus on *Antirrhinum*, 2716.
— virus diseases in Aegean, 2163; Mediterranean basin, 1550, 1745a; Pacific Region
1875; Philippines, 1876; isolation and purification of, 186; symptoms of, 1876; transmission of, mechanically, 186.
— woody gall virus, use of synergy to demonstrate variants of, 1553.
—, *Xanthomonas citri* on, in Argentina, 1556
Japan, 1887; *Mauritius and *Réunion
1064b; control, 1130; forecasting of, 1073
phage sensitivity of isolates of, 1887.
— xyloporosis virus on citrus in Aegean, 2163
Trinidad, 817.
— yellow vein virus, detection of, 1554.
— — — — severe Tulare str., 1553.
Citrus aurantium, see Orange.
— *aurantifolia*, see Lime.
— *excelsa*, citrus tristeza virus on, in Cyprus
3113.
— *limonia*, see Lemon.
— *macrophylla*, citrus cachexia virus on, in
U.S.A., 1552.
— —, — tristeza virus on, in Cyprus, 3113
U.S.A., 1552.
— *maxima*, see Shaddock.
— *medica*, see Citron.
— *mitis*, citrus tristeza virus on, in Cyprus
3113.
— *nobilis*, see Orange.
— *paradisi*, see Grapefruit.

citrus] *poonensis*, see Orange.
— *sinensis*, see Orange.
— *tankan*, see Orange.
— *trifoliata*, see *Poncirus trifoliata*.
L-50, fungicidal activity of, 3686.
— versus copper-A, dithane Z-78, fernasan and perenox, 3686.
Cladosporium cladosporioides in the air in Wales, peak periods of, 6.
— *cucumerinum*, non-utilization of pisatin by, 1722.
— — on cucumber, 385, 3666n, o, p.
— *fulvum* on tomato, 1298, 5218.
— — on vegetables, 1995.
— —, study on, 2998.
— *herbarum* on beet, stored, 2903.
— — on cereals, 2030.
— — on *Hibiscus cannabinus*, 2437.
— — on poplar, 333.
— — on tobacco, 3565.
— *nitrariae* on *Nitraria schoberi*, 451.
— *oxysporum* on citrus, 1128.
— *paeoniae*, study on, 2998.
— *resinae*, ecology of, 930.
— —, growth of, on kerosenes, 3345.
— — in soil, 3344.
Clasterosporium carpophilum, see *Stigmina carpophila*.
Clavaria, effect of, on coniferous litter microflora, 2282.
Claviceps gigantea on maize, 3306.
— *microcephala* on *Pennisetum typhoides*, 980b, 1863.
— —, viability of sclerotia of, in relation to size and weight, 1863.
— *paspali*, preservation of, 3382.
— *purpurea* in U.S.S.R., hosts of, 1478.
— — on *Alopecurus pratensis*, 1170.
— — on *Festuca arundinacea* and *F. a.* × *Lolium multiflorum*, 1419.
— — on *F. rubra*, 1170.
— — on grasses, 118, 1170.
— — on *Lolium perenne*, 1104.
— — on *Poa pratensis*, 1170, 2509.
— — on rye, see Rye.
— — on wheat, 118.
— —, phosphorus content during development of, 3000.
— —, production of tryptamine by mutants of, 3001.
— —, role of exogenous succinate produced by, 3002.
— —, technique for preparing inoculum from sclerotia of, 2095.
Cleonia lusitanica, *Botrytis cinerea*, on, in U.S.A., introduced from abroad, 2437.
Clitocybe, effect of, on coniferous litter microflora, 2282.
— *tabescens* on timber, 979.
Clorox as disinfectant for pruning shears against *Erwinia amylovora*, 252.
Clove (*Eugenia aromatica*), *Cylindrocladium quinqueseptatum* can infect, 765.
Clover (*Trifolium*), bean yellow mosaic virus on, in Bulgaria, 1460; Czechoslovakia, 239; W. Australia, 240; identification of, 3483, 3484.
— big vein virus on *Agallia constricta*, 74.
— — — — on clover, electron microscopy of assembly sites of, 74.
— — — —, see also Clover wound tumour virus.
—, *Cercospora zebrina* on, in Brazil, 1168b.
[Clover], *Curvularia trifolii* on, comparative study of, 1175.
— diseases in W. Australia, 240; bulletin on, 3485.
—, effect of, on survival of *Typhula idahoensis* sclerotia in soil, 3409.
— enation (?)virus on broad bean and clover in Italy, transmission of, by dodder and grafting, 2515.
— — — on *Medicago lupulina*, 2515.
—, *Erysiphe martii* on, in Switzerland, 1809.
—, — *polygoni* on, in W. Australia, 240; control, 3139; differences in respiration in healthy and infected leaves, 2187.
—, *Fusarium* on, incidence of, 2157; relationship of clipping frequency to, 2516; of *Sitonia hispidula* to, 2517.
—, — *oxysporum* on, effect of cutting height on development of, 555; of frequent clipping on, 2188.
—, — *roseum* on, effect of frequent clipping on and factors affecting sporulation of, 2188.
—, — — 'Avenaceum' on, injury to roots of, 3141.
—, — *solani* on, effect of cutting height on development of, 555; of frequent clipping on, 2188.
—, groundnut rosette virus on, in Malawi, symptoms of, 960.
—, *Kabatiella caulivora* on, control, 3139.
—, *Leptosphaerulina trifolii* on, in W. Australia, 240.
—, lucerne mosaic virus on, in Czechoslovakia, 239, 2514; incidence of, 2514.
—, pea mosaic virus on, in Czechoslovakia, 239; W. Australia, 240.
—, — — — stem browning str. can infect, 2904.
—, — streak (American) virus on, identification of, 3484.
— phyllody virus on clover, control, 3139; effect of, on nodulation of, by *Rhizobium trifolii* in soil, 1172; inactivation of, by heat treatment and UV light, 3665a; time of infection of, 2652; transmission of, by vectors, 3665a.
— — — on strawberry, 2652.
—, *Physoderma trifolii* on, in W. Australia, 240.
—, *Pseudopeziza* on, control, 3139.
— 'purple patch' in W. Australia, fungi associated with, 241.
— red leaf virus disease, symptoms of and transmission of, by vectors, 3140.
—, —, mottle virus on clover in Czechoslovakia, 239.
—, —, necrotic mosaic virus on clover in Czechoslovakia, 239.
—, —, vein mosaic virus, serology of, 1048.
—, —, — — — on clover in Czechoslovakia, 239; identification of, 3484.
—, —, — — — on *Gomphrena globosa*, 1461.
—, —, — — — on pea, 3626.
—, *Sclerotinia trifoliorum* on, in England, 242; Poland, 2189; control, 3139; effect of soil micro-organisms on, 1173a; *Mitrula sclerotiorum* associated with, 2189; resistance to, 242.
— spotting, effect of light and temp. on and resemblance of, to *Leptosphaerulina trifolii*, 238.
—, *Stagonospora recedens* on, in Brazil, 1168b.
—, subterranean clover stunt virus on, in W. Australia, 240.

[Clover], tar vapour injury to, 1072.
—, tobacco ring spot virus on, identification of, 3484.
—, *Uromyces flectens* on, in Norway, 1174.
—, — *nerviphilus* on, rejection of, 1174.
—, — *trifolii* on, in W. Australia, 240; rejection of, 1174.
—, — *trifolii-purpurei* on, in Switzerland, 1809.
—, — *trifolii-repentis* on, in Norway, 1174.
— virus disease in Hungary, related to bean yellow mosaic virus, 1743b.
— — diseases, transmission of, by seed, 3482.
—, white, mosaic virus on clover in Czechoslovakia, 239; isolation, physical properties and transmission of, 3481.
— wound-tumour virus, electron microscopy of accumulations of, in vector, 2428.
— — — — — not related serologically to reoviruses, 2429.
— — — — — on *Agallia constricta*, 3391.
— — — — —, see also Clover big vein virus.
*—, *Xanthomonas alfalfae* on, in Rumania, morphological, cultural, and biochemical features of, 1912.
— yellow mosaic virus, papaw mosaic virus grouped with, 2223.
— — — — —, serology of, 2643.
CM 632 against *Guignardia citricarpa* on orange, 1127.
C.M.I. descriptions of pathogenic fungi and bacteria, set 14, 42; sets 15 and 16, 1035; set 17, 3030; sets 18 and 19, 3731.
Coal tar oil as timber preservative, 1989.
Cobalt superphosphate, effect of, on rhizosphere microflora in relation to *Verticillium* on cotton, 213.
Coccomyces heterophyllae on *Tsuga heterophylla*, 1696.
**Coccus viridis*, *Entomophthora fresenii* on, in India, 414.
Cochliobolus carbonum, genetics of toxin production and pathogenicity, 1516.
— — on bean, 2333.
— — on Gramineae, 3480.
— — on maize, see Maize.
— — on *Phaseolus limensis*, 2333.
— — on potato, 875.
— — on soybean, 2333.
— *cynodontis* on *Cynodon dactylon*, 552.
— *geniculatus* on pine, 2863b.
— *heterostrophus* on maize, 2698.
— *lunatus* on rice, stored, 520.
— — on wheat, 2132.
— —, sclerotial formation by, 431.
— *miyabeanus*, effect of Cu, Zn, and Hg compounds on, 1545; of inhibitors from seedcoats of plants on germination of, 1406.
— — in air over rice fields, 1865a.
— — in soil, 3022.
— —, inhibition of, by aureofungin, 3341.
— — on rice, see Rice.
— *nodulosus*, inhibition of, by aureofungin, 3341.
— *sativus*, as test fungus, 3730.
— —, effect of diurnal temp. fluctuations on growth of, 1413; of natural soil on survival of, 1021; hosts of, 1094.
— — in rhizosphere of maize, 507.
— — in soil, see Soil.
— —, N utilization by, 1769d.
— — on *Agrostis palustris*, 2185.
— — on barley, see Barley.
*[*Cochliobolus sativus*] on bean, 3268.
— — on cereals, 1077, 1477.
*— — on rice, 2032a.
— — on wheat, see Wheat.
— —, production of unidentified ninhydrin positive substance by, 1770.
— — +*Pyrenophora teres* on barley, 2690.
— *setariae* on *Setaria italica*, 2154.
— *spicifer*, effect of diurnal temp. fluctuation on growth of, 1413.
*— — on cotton, 1144.
— — on wheat straw, 124.
— *victoriae*, genetics of toxin production and pathogenicity, 1516.
— — on bean, 3268.
— — on oats, see Oats.
— —, symptomless carrier of disease in, 205
Coconut (*Cocos nucifera*) broken leaf Surinam, (?)new disease and symptoms 3530.
— cadang-cadang disease in the Philippine necessity for replanting, 1223; technique f transmitting, 1637.
— Kribi disease in Cameroon, new *Valsa*-s causing, 283.
— lethal yellowing, reproduction of, mechanical inoculation, 1637, 2802.
—, *Pestalotiopsis palmarum* on, in Cambodi 3528.
— root wilt disease, anatomical derangeme in, 3529.
—, S deficiency in, in Papua and New Guine control, effect of on copra quality and yie symptoms of, 2542.
—, *Valsa batangae* on, in Cameroon, causin Kribi disease, *Cytospora batangae* conidi state of, 283.
Cocos nucifera, see Coconut.
Coelomomyces indicus on *Anopheles gambia* 3685b.
— *punctatus* on *Anopheles quadrimaculatu* 3685a.
Coffea, see Coffee.
Coffee (*Coffea*), assessing spray efficiency o 1888.
*—, *Botrytis cinerea* on, in Rhodesia, causin warty disease, 2359a.
—, *Capnodium* on, in Guatemala, 1562.
*—, *Cephalosporium zonatum* on, in Cos Rica, 1560.
—, *Cercospora coffeicola* on, in Colombi 1133; Malawi, 399d; control, 2723b, 2960 effect of proprietary formulations on, 344 factors affecting, 399d, 1133; nutritional r quirements of, 1561; spore dispersal o 399d; spraying against, 2169; strains o 2723a.
—, effect of Cu fungicides and fertilizers o yield of, 1563.
—, *Fusarium* on, in Malawi, 399d; Rhodesi causing bark disease, 3f.
*—, — *solani* var. *minus* on, in India, 202.
—, — *stilboides* on, 1558; in Malawi, 399 1891; factors affecting, 891; spread of, 189 weeds in relation to, 399d.
—, *Gloeosporium* on, in Papua and Ne Guinea, *Glomerella cingulata* perfect state o and resemblance of to coffee 'weak spot' i Kenya, 203.
—, *Glomerella cingulata* on, 203; in East Afric 1379f; Kenya, 2724; control, 820, 1379 1559, 2724, 3116; effect of metabolic inhib tors on susceptibility to, 1558; factors affec

ng, 3116; sporulation of, 1379f; technique for spraying against, 2725; uneven distribution of, 1374h.
offee], *Hemileia vastatrix* on, in Papua, 2721; Tanzania, 1890; control, 201, 820, 1559, 2169, 2170, 2722; cytology of, 3115; effect of light on germination and infection by, 1890; of proprietary formulations on, 3445; of tween 80 and teepol on, 1559; eradication of, 2721; genetics of, 1132; germination of, 526; non-susceptibility of shade trees to, 1889; outbreaks of, 2721.
, *Meliola* on, in Guatemala, 1562.
, *Myrothecium roridum* on, control, 3446.
, *Pellicularia koleroga* on, effect of proprietary formulations on, 3445.
- phloem necrosis, coffee root rot in Guatemala (?) identical with, 1562.
-, *Rhizopus stolonifer* on, 1558.
- ring spot virus on coffee in the Philippines, incidence, symptoms, and transmission of, by seed, 200.
- root rot in Guatemala, (?) identical with phloem necrosis, 1562.
-, *Rosellinia* on, in Guatemala, symptoms of, 1134.
-, — *bunodes* on, in Guatemala, control and symptoms of, 1134; effect of soil humidity and pH on mycelial growth and infection, 1135.
-, — *pepo* on, effect of soil humidity and pH on mycelial growth and infection, 1135.
-, *Sclerotium rolfsii* on, 1558.
- 'weak spot' in Kenya, coffee leaf spot in Papua and New Guinea resembling, 203.
- grounds against *Fusarium solani* f.sp. *phaseoli* on bean, 3669g.
Cola chlamydantha virus, classified with cacao swollen shoot virus, 1074.
Coleosporium asterum on aster, pine, *Solidago altissima*, and *S. canadensis*, 3235.
- *paederiae* on pine, 2286, 3236.
Collembola transmitting *Ceratocystis fimbriata*, 1470a.
Colletotrichum atramentarium on potato, see Potato.
— — on tomato, see Tomato.
- *capsici*, studies on pectolytic enzymes of, 1769h.
- *coccodes*, antagonism of mycolytic soil bacteria to, 2074.
— —, C.M.I. description of, 42.
— —, effect of culture filtrate of *Bacillus cereus* var. *mycoides* on, 3698.
— —, inhibition of, by actidione, 3698.
— — on hemp, 1900.
— — on potato, 93.
— — on tomato, see Tomato.
- *crassipes* on *Hevea* rubber, 3059b.
- *dematium* on ash, 325.
— — on groundnut, 961.
— — on *Hevea* rubber, 3059b.
— —, utilization of monosaccharides by, 26.
- *fragariae* on strawberry, 2533.
- *gloeosporioides* f.sp. *alatae* on *Dioscorea alata*, 2952.
— — — — on yam, 2062.
- *gossypii* on cotton bolls, 531.
- *graminicola*, C.M.I. description of, 42.
— — in India, hosts of, 3099.
— — on barley, 140.
— — on maize, 3744.
— — on sorghum, 806, 3744.
[*Colletotrichum graminicola*], similarity of, to *Glomerella tucumanensis* on sugarcane, 3099.
— *hibisci* on *Hibiscus cannabinus*, 3456.
— *higginsianum* on *Isatis tinctoria*, 2437.
— *lagenarium*, electron microscopy of, 2946, 3657.
— —, extraction of N compounds from conidia of, 3725.
— — on cucumber, see Cucumber.
— — on watermelon, 717.
— *lindemuthianum* as test fungus, 3690.
— —, non-utilization of pisatin by, 1722.
— — on bean, see Bean.
— —, storage in liquid N, 2365.
— *linicola* on flax, see Flax.
— *musae* associated with *Pseudomonas solanacearum* on banana in Colombia, 2535.
— — on banana, see Banana.
— — on tropical fruits, 1628.
— *nicotianae* on tobacco, 2605.
— *nigrum* on *Capsicum*, 720.
— *nobile* on *Laurus nobilis*, 2501.
— *spinaciae* on spinach, 3261.
— *tabacum* on tobacco, 399b, 885.
— *truncatum* on soybean, 1939.
Colloidox against *Hemileia vastatrix* on coffee, 1559.
**Collybia velutipes* on horse-chestnut, 3579.
— — on timber, 679.
Colocasia esculenta, *Macrophomina phaseoli* on, in India, 2953.
— —, *Phytophthora colocasiae* on, resistance to, 2028.
Colombian *Datura* virus, properties and serology of, 2647.
Compositae, *Ascochyta* on, in U.S.S.R., biology of, 2433.
—, beet western yellows virus on, 944.
—, Erysiphaceae on, in U.S.S.R., 1037.
—, *Erysiphe cichoracearum* on, C.M.I. description of, 1035b.
Compost disinfection by mylone, nabam, and vapam, 714.
Compounds C and J, inhibition of fungi by and production of, by *Anagallis arvensis*, 744.
Conferences, congresses, symposia, etc. [see also Reports], on air pollution damage to plants, 3700; American Phytopath. Soc. (Caribbean Div.), 2960; (Southern Div.), 3305; (Pacific Div.), 401; (Potomac Div.), 3669; (N.E. Div.), 2590; American Potato Association (51st), 597; British Insecticide and Fungicide (4th), 1375; Canada Phytopath. Soc., 978; cryptogams of Central Asia and Kazakhstan, Tashkent, 3303; enrichment culture and mutant selection, Göttingen, 2087; FAO on crop losses, Rome 1967, 389; host-parasite relationships in plant diseases, Calcutta, 731; Wageningen, 3666; (Italian) Book Restorers, 1408; IUFRO (14th) Munich, 921; insect pathology and microbial control, Wageningen, 737; Latin American on Agricultural methods, Venezuela, 3306; Marine mycology, Bremerhaven, 2955; microenvironment and biology of soil, 3364; International Agricultural Aviation, (3rd), Netherlands, 392; International on Nematology (8th), 2589; International on Phytiatry, Sanremo, 2356; International on phytopharmacy and phytiatry (19th), 1374; International Plant Protection, (6th), Vienna, 393, 1002, 1404; Plant Protection (17th), Budapest, 1743; Plant Protection (36th),

Germany, 395; plum pox virus, 2760; maize, millets, rice and sorghum, Chandigarh, India, 1113; physiology of fungi, Chandigarh, India, 1769; Plant disease control, Delhi, 2430; potato virus degeneration, Vladivostok, 599; rice diseases, Tokyo, 2480; rice virus diseases, I.R.R.I., 169; Tea Research Institute (Centennial), Ceylon, 620; tobacco virus diseases, 306; vegetable growing under glass, The Hague, 391.
Coniella diplodiella on grapevine, 1935.
Coniferae, *Adelopus* needle-cast fungi on, identification and taxonomy of, 2283.
—, *Armillaria mellea* on, 1315.
—, *Cercospora cryptomeriae* on, in Japan, (?)introduced from N. America, synonymous with *C. sequoiae*, 1327.
— diseases in U.S.S.R., 1314.
—, effect of basidiomycetes on litter microflora, 2282.
—, *Fomes annosus* on, effect of resin on resistance to and technique for studying, 3229; revision of Forest. Comm. Leafl. on, 664.
—, *Herpotrichia nigra* on, ecology of, 663.
—, *Rhizoctonia* spp. on, 1695.
—, *Rhizosphaera*, *R. kalkhoffii*, and *R. pini* on, in Japan, taxonomy of, 1313.
—, Uredinales on, in India, 644.
Coniophora puteana in soil, 648.
— — on oak and pine, 1702.
— — on spruce, 3244.
— — on *Tilia*, 1702.
— — on timber, see Timber.
Coniothyris cydoniae on quince, 1179.
Coniothyrium minitans, effect of quintozene on, 1173c.
— — on fungal sclerotia, 1173b.
Convolvulus arvensis, stolbur virus on, symptoms and transmission of, by vectors, 1451.
Copper against *Capnodium* on coffee, 1562; *Cercospora citri-grisea* on citrus, 2960c; *C. coffeicola* on coffee, 2960d; *Corynebacterium michiganense* on tomato, 321; *Cycloconium oleaginum* on olive, 1745s; *Exobasidium vexans* on tea, 620b; *Glomerella cingulata* on coffee, 1379f, 2724; *Gnomonia leptostyla* on walnut, 2280; *Hemileia vastatrix* on coffee, 201; *Meliola* on coffee, 1562; *Pestalotia* on pine, 3239; *Phytophthora infestans* on tomato, 635; *Polystigma rubrum* on plum, 1200; *Pseudomonas phaseolicola* on bean, 2327; *Rosellinia* on coffee, 1134; *Scirrhia pini* on pine, 351; *Xanthomonas juglandis* on walnut, 2280.
— contamination of field latex and solid rubber, 2824.
— deficiency in apple, 2521.
—, effect of, on coffee yield, 1563; on growth of *Helminthosporium*, 2063; on *Tilletia caries* on wheat, 2127; on *Xanthomonas oryzae* on rice, 1113s.
—, inhibition of *Gloeosporium alborubrum* on *Hevea* rubber by, 880d.
— injury to oil palm, 3181.
—, toxicity of, to maize, 1113a; to pine, 2865; to rice, 1113s.
— versus dithiocarbamates, 1200; *o*-difolatan, 2724; makrolin, 2983.
— in combination against *Botrytis cinerea* on grapevine, 1743i; *Cercospora citri-grisea* on citrus, 2960c; *Plasmopara viticola* and *Uncinula necator* on grapevine, 1743i.
— -A versus CL–50, 3686.
[Copper] 50 blue against *Hemileia vastatrix* coffee, 2722; *Leptosphaeria salvinii* on ri 811.
— chloride in combination against *Nect galligena* on apple, 2200.
— compounds against *Cercospora beticola* beet, 1341; *Peronospora tabacina*, 2 *Phytophthora infestans* on potato, 12 *Pseudomonas angulata* and *P. tabaci* tobacco, 2834; *Venturia inaequalis*, 397k
— — injury to apple, 397k.
— oxide against *Glomerella cingulata* coffee, 3116; *Myrothecium roridum* on coff 3446; *Phytophthora cambivora* and *cinnamomi* on chestnut, 2274; *Scirrhia p* on pine, 919c.
— —, toxicity of, to *Phytophthora infestans* potato, 1237.
— oxychloride against *Alternaria citri* orange, 2032l; *Botrytis cinerea* on grapevi 3172; *Cylindrosporium maculans* on mulber 1630; *Deuterophoma tracheiphila*, 18 *Elsinoe ampelina* on grapevine, 1634; *Ma sonina brunnea* on poplar, 2853; *My sphaerella sentina* on pear, 1609; *Neet cinnabarina* on currant, 2031e; *Peronosp tabacina* on tobacco, 2834; *Phytophth infestans* on potato, 607; on tomato, 16 *Plasmopara viticola*, 2792; *Pseudomon angulata* and *P. tabaci* on tobacco, 28 *Puccinia pringsheimiana* on gooseberry, 19 *Scirrhia pini* on pine, 919c; *Septoria apiic* on celery, 2023; *S. lycopersici* on toma 1377i; *S. ribis* on gooseberry, 2772; *Xanth monas juglandis* on walnut, 918; *X. oryzae* rice, 1872; *X. rubi-idaei* on raspberry, 35 as seed treatment for onion bulbs, 2339.
— —, constituent of blitane, new, 1236.
— —, effect of alone and with streptomyc sulphate on *Pseudomonas syringae* on pe 2757.
— — ineffective against *Phytophthora infesta* on potato, 3e.
— —, phytotoxicity of, 1883b.
— — in combination against *Fabraea macula* on pear and quince, 3495; *Helminthosporiu heveae*, 880c; *Peronospora tabacina*, 283 *Plasmopara viticola*, 2791, 2792; *Pseud monas angulata* and *P. tabaci* on tobacc 2834; *Scirrhia pini*, 919c; *Septoria apiico* 2023.
— — — —, use of, on currant, potato, a tomato, 19.
— sandoz in combination against *Xanthomon citri* on citrus, 1130.
— soap emulsion against *Microsphaera alp toides* on oak, 910.
— sulphate against fungi on groundnut, 173 *Phytophthora capsici* on *Capsicum*, 294 *Plasmopara viticola*, 1743i; *Rhacodiella vi* on grapevine, 1934; rice 'branca', 2481; timber preservative, 678.
— — in combination against *Helminthosporiu heveae*, 880c; *Nectria galligena* on app 2200; *Xanthomonas citri* on citrus, 1130; seed treatment for rice, 3341.
Coprinus micaceus on birch, 2890.
Corchorus capsularis and *C. olitorius*, see Ju
Cordyceps in Norway, 992.
— *militaris*, production of perithecial stroma by, 2595.
Coriander (*Coriandrum sativum*), *Anthris* yellows virus on, 3301l.

riander], *Protomyces macrosporus* on, control, 2430.
Pseudomonas on, 3299k.
Ramularia coriandri on, in U.S.S.R., symptoms of, 278.
Septoria umbelliferarum on, in U.S.S.R., 464.
virus diseases, symptoms of, 3299e.
rm diseases, bulletin on, 832.
ronilla varia, Fusarium roseum on, control, 341.
rticium fuciforme on grasses, 394i.
— on turf, 1592.
invisum on tea, 3203.
praticola in soil, 1028.
(?)*psorosum* associated with timber pink stain, 1333.
sasakii on rice, see Rice.
solani, effect of *Bacillus subtilis* and *B. licheniformis* on growth and sclerotium formation by, 3363; of chemicals on heterokaryosis in, 2629; of thioaceto-hydroxamic acids on growth of, 994.
— in rhizosphere of cotton, 27.
— in soil, see Soil.
—, inhibition of, by difolatan, and quintozene, 3305a; by *Streptomyces rimosus*, 978d.
—, modes of penetration by different isolates of, 2591.
—, mutation in, 1444.
—, natural melanins of, 3351.
—, number of nuclei in hyphal cells of, 3040.
— on bean, see Bean.
— on broad bean, 126, 3633.
— on cabbage, see Cabbage.
— on carnation, 222.
— on *Carthamus*, 1939.
— on cauliflower roots, 3620.
— on cereals, 2584l.
— on Coniferae, 1695.
— on cotton, see Cotton.
— on flax, 3125, 3458.
— on forest trees, 2284.
— on groundnut, 1731a.
— on hemp, 2229.
— on *Hibiscus cannabinus*, 2730.
— on oil palm, 596.
— on *Phaseolus aureus*, 2008, 2332, 2917.
— on pine, see Pine.
— on potato, see Potato.
— on radish, 2591.
— on rice, 3108.
— on safflower, 282.
— on sesame, 1939.
— on soybean, 1939, *3635.
— on tobacco, 399b.
— on tomato, see Tomato.
— on wheat, 126.
—, P-32 accumulation in sclerotia of, 427.
—, storage in liquid N, 2365.
rylus, Gloeosporium on, in Italy, morphology and symptoms of, 650.
ryne sarcoides on spruce, 2882b.
rynebacterium, serological relationships of, 2974.
fascians, cytokinins in RNA of, 2374.
— on strawberry, 861, 1626, 1929.
—, serological relationships of, 2974.
flaccumfaciens var. *violaceum* on bean, 2325, 2326.
insidiosum on lucerne, 2032g, *3144.
michiganense, hosts of, 1972.
— on *Lycopersicon pimpinellifolium*, 2267.
[*Corynebacterium michiganense*] on tomato, see Tomato.
— *sepedonicum*, effect of purines and pyrimidines on growth of, 2375b.
— —, nutritional requirements of, 4b, 2375a.
— — on potato, 730a.
— *tritici* on wheat, 3089.
Coryneopsis microsticta, conidial state of *Griphosphaeria corticola*, 1603.
Corynespora cassiicola on cotton, 532.
— — on *Eucalyptus grandis*, 654.
— — on sesame, 1939.
Coryneum beijerinckii, see *Stigmina carpophila*.
*— *thujinum* on *Thuja plicata*, 2562f.
Cotton (*Gossypium*), *Achromobacter* on, not causing boll rot, 1576.
—, actinomycete str. 1952 on, effect of UV light on, 211.
—, *Aerobacter aerogenes* on, 3456.
—, *Alternaria* on, in Brazil, associated with boll rot, 821; effect of, on *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum*, 1570.
—, — *macrospora* on, in Formosa, 1143; Nigeria, 2587d; control, 1143.
—, *Ascochyta* on, in Brazil, associated with boll rot, 821.
*—, — *gossypii* on, in Kenya, 2a.
—, *Aspergillus flavus* on, associated with fluorescence of seed, 1574; technique for determining pathogenicity of, in cotton boll rot complex, 1575.
—, — *melleus* in rhizosphere of, antagonism of, to, 3447.
—, — *niger* on, technique for determining pathogenicity of, in boll rot complex, 1575.
—, — *terreus* in rhizosphere of, antagonism of, to, 3447.
—, *Bacillus* on, not causing boll rot, 1576.
—, — *pumilus* on, 3456.
—, — *subtilis* on, determining pathogenicity of, in boll rot complex, 1575.
—, bacteria on, not causing boll rot, 1576.
— boll rot in Brazil, 821; Formosa, 1143; control, 1143; *Diplodia gossypina* associated with, 1143; fungi associated with, 821, 3122; storage of, 533; technique for determining pathogenicity of organisms involved in, 1575.
—, *Botryodiplodia* on, in Brazil, associated with boll rot, 821; inhibition of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* by, 1570.
—, *Cephalosporium* on, inhibition of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* on cotton by, 1570.
—, *Cercospora gossypina* on, in French W. Africa, 532.
—, — *lhuillieri* on, cultural and morphological characters of, 1573.
—, *Chaetomium* on, inhibition of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* by, 1570.
—, *Cladosporium* on, in Brazil, associated with boll rot, 821.
*—, *Cochliobolus spicifer* on, in India, incidence and symptoms of, 1144.
—, *Colletotrichum gossypii* on bolls of, in India, *Glomerella gossypii* perfect state of, 531.
—, *Corticium solani* in rhizosphere of, antagonism of *Aspergillus flavus*, *A. terreus*, and *Bacillus subtilis* to, 27.
—, — — on, in Upper Volta, 3456; adaptation of, to fungicides, 420; control, 1401, 3452;

effect of *Bacillus* on virulence of, 528; of root temp. on hypocotyls of, as source of nutrition for, 3453; evaluating fungicides against, 2597; factors affecting, 528; resistance of, to, 527; of, to quintozene, 3015.
[Cotton], *Corynespora cassiicola* on, in French W. Africa, morphology of, 532.
—, *Curvularia* on, effect of, on *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum*, 1570.
—, *Diplodia* on, in Brazil, associated with boll rot, 821.
— diseases, 2171; in Italy, control, 1807.
—, effect of microelements on rhizosphere microflora in relation to *Verticillium* wilt, 213.
—, *Eremothecium ashbyi* on, C.M.I. description of, 3731b.
—, *Erwinia aroideae* on, 3456; causing boll rot, 1576.
—, fungi on roots of, technique for observing, 3121.
—, *Fusarium* on, in Brazil, 821; Egypt, 205; associated with boll rot, 821; collection of papers on (Tashkent), 3118; effect of soil conditions on, 205; var. react. to, 1893.
—, — *equiseti* on seed of, in Israel, 1466.
—, — *oxysporum* on, inhibition of *F. oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* on cotton by, 1570; resistance mechanism in, 2435.
—, — — f.sp. *vasinfectum* on, in Brazil, 822; Central African Republic, 3456; U.S.S.R., 1142, 1568; control, 1568; effect of *Meloidogyne incognita* on incidence of, 822; of nemagon on, 1895; of phenolic compounds of, on production of cellulose, 2727; of physical factors of soil on incidence of, 1565; of sand in soil on incidence of, 822; of soil temp. on interrelationship of resistance and susceptibility to, 3305d; of $ZnSO_4$ on, 2726; inhibition of, by associated fungi, 1570; production of proteases, trans-eliminases and fusaric acid by, 3451; proteins in, 206; relationship of manure and N fertilizers to, 204; review of literature on control and incidence of, 1142; technique for inoculating, 1567; variation in ^{32}P uptake in presence of different C sources, 530; var. react. to, after stem and root inoculation, 1894; var. react. to, 1566.
—, — *roseum* on, effect of bacteria on virulence of, 528.
—, — *solani* on, relationship of manure and N fertilizers to, 204.
—, *Gibberella fujikuroi* on, technique for determining pathogenicity of, in boll rot complex, 1575.
—, *Gliocladium* on, inhibition of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* by, 1570.
—, *Glomerella gossypii* on, in Brazil, 821; India, 531; *Rhodesia, 2588a; associated with boll rot, 821, 3122; factors affecting, 823; inhibition of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* by, 1570; perfect state of *Colletotrichum gossypii*, 531; var. and spec. react. to, 215.
—, *Gonatorrhodiella* on, inhibition of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* by, 1570.
— growing in irrigated soils (Tashkent), literature for 1965, incl. diseases, 2171.
[Cotton] leaf curl virus on cotton, genetics 1564.
—, *Macrophomina* on, effect of, on *Fusar oxysporum* f.sp. *vasinfectum* and *Verticill alboatrum*, 1570.
—, — *phaseoli* on, associated with *Cercosp lhuillieri*, 1573.
*—, *Microxyphiella* on, 216.
—, — *hibiscifolia* on, in India, hosts of, 345
—, *Monilia* on, in Brazil, associated with rot, 821.
—, *Moniliopsis aderholdii* on, form of *Cort solani*, 455.
*—, *Mycosphaerella areola* on, in India, p thecial state of *Ramularia gossypii*, 1896.
—, *Nematospora gossypii* on, C.M.I. dese tion of, 3731b.
—, *Nigrospora* on, determining pathogeni of, in boll rot complex, 1575.
—, *Penicillium nigricans* in rhizosphere antagonism of, to, 3447.
—, *Phakopsora gossypii* on, C.M.I. descrip of, 3731a.
—, *Phlyctaena gossypii* on, associated *Cercospora lhuillieri*, 1573.
—, *Phoma* on, in Brazil, associated with rot, 821; with *Cercospora lhuillieri*, 15 inhibition of *Fusarium oxysporum* f *vasinfectum* and *Verticillium alboatrum* 1570.
—, *Phomopsis* on, in Brazil, associated with rot, 821.
—, *Phyllosticta gossypina* on, in India, 826
—, *Phymatotrichum omnivorum* on, in U.S. factors affecting, 827.
—, *Physalospora rhodina* on, determining pat genicity of, in boll rot complex, 1575.
—, *Pseudomonas* on, not causing boll rot, 15
—, *Pythium* on, pathogenesis by, 1571.
—, — *aphanidermatum* on, pathogenesis 1572.
—, — *debaryanum* on, pathogenesis by, 15 1572.
—, — *paroecandrum* on, pathogenesis by, 15
—, — *ultimum* on, pathogenesis by, 15 resistance to, 527.
—, *Ramularia gossypii* and *Rhizoctonia* on, Brazil, associated with boll rot, 821.
— root rots control, 2492.
— seed treatment, effect of, on deterioration during humid storage, 2176.
—, *Thielaviopsis* on, effect of, on *Fusari oxysporum* f.sp. *vasinfectum* and *Verticill alboatrum*, 1570.
—, — *basicola* on, effect of bacteria and ne todes on virulence of, 528; factors affecti 528; spec. react. to, 527.
—, — — + *Verticillium alboatrum* on, tors affecting virulence of, 528.
—, *Trichoderma viride* in rhizosphere of, a gonism of, to, 3447.
—, *Verticillium* on, in U.S.S.R., 2489; col tion of papers on, 3118; control, 3118, 33 effect of alternate crops on, 2489, 2728, 31 Mo on, 2488; of Mo and Zn on resistance 212; of seed quality on incidence of, 21 factors affecting, 2489; incidence of, 24 susceptibility to, 478; var. react. to, 1893
—, — *alboatrum* on, control, 2486, 3117; tinction of *V. fumosum* from, 3450; effec bacteria and nematodes on virulence of, 5 of insecticides on incidence and severity 2485; of soil temp. on interrelationship

sistance and susceptibility to, 3305d; of, n rate of photosynthesis in, 1892; enzymatic id respiratory studies with, 2172; inhibition f, by associated fungi, 1570; quantitative udies on, 824; spec. react. to, 527; tech-ique for evaluating resistance to, 825.
tton, *Verticillium alboatrum*] + *Fusarium oseum* and +*Thielaviopsis basicola* on, actors affecting virulence of, 528.
— *dahliae* in debris of, determination of nfection by, 3448.
— — on, in U.S.S.R., 1139, 1568; antago-ism of actinomycetes to, 210; carbohydrate netabolites secreted by, 207; control, 529, 138, 1568, 3120; development of micro-clerotial form of, 3449; of, in soil, 1137; of, n tissues of, 2173; distinction of *V. fumosum* rom, 3450; effect of antagonistic fungi on, 3447; of bacteria-enriched compost on, 1141; of deep and shallow inter-row treat-ment on, 2729; of quintozene on, 1569; maintenance of virulence of, 1137; penetra-tion by, 209; production of antibiotic antago-nistic to, by actinomycetes in soil, 1139; proteins in, 206; spread of, in tissues of, 2173; technique for detecting degree of resistance to, 208.
, — *fumosum* on, distinction of, from other *V.* spp. on cotton, 3450.
–, — *nigrescens* on, 214.
, — *nubilum* on, similarity of *V. fumosum* to, 3450.
, — *tricorpus* on, distinction of *V. fumosum* from, 3450.
, *Volutella* on, effect of, on *Fusarium oxy-sporum* f.sp. *vasinfectum* and *Verticillium alboatrum*, 1570.
wilt, apparatus for detecting, 1136.
–, *Xanthomonas celebensis* var. *gossypii* on, in India, 534a; inhibition of, by *Streptomyces anulatus*, 534b; morphological and physi-ological characters of, 534a.
, — *malvacearum* on, 218; in Brazil, 821; C. African Republic, 3456; Iran, 3063d; Ivory Coast, 3456; U.S.A., 1146; associated with boll rot, 821; control, 828; development of lines for differentiating races of, 3124; distribution and penetration of antibiotics in tissues of, 3455; effect of early sowing on, 217; of *Flavobacterium* on, 1897; eradication of, 1146; inhibition of, by bacterium, 1145; not causing boll rot, 1576; phytoncide activity in, 2175; susceptibility to, 3456; technique for determining pathogenicity of, in boll rot complex, 1575; variation in host-parasite relationship of, 3123; var. react. to, 829.
urgette (*Cucurbita pepo*) virus disease in Kenya, 2959b.
see also Vegetable Marrow.
wania mexicana, effect of H_2O_2 on seeds of, 1980.
wpea (*Vigna unguiculata*) chlorotic mottle virus, properties of, 3277, 3278.
— — — on cowpea, 3276; hosts of and specific infectivity of, 3392.
— — +cucumber mosaic viruses on cowpea, 3276.
citrus infectious variegation virus on, 189; ransmission of mechanically, 2715.
cucumber mosaic virus on, 3611; peroxidase sozymes in, 2112.
diseases in Iran, 3262.
*[Cowpea], *Entyloma vignae* on, in Brazil, symptoms of, 2337.
*—, *Isariopsis griseola* on, in Venezuela, 2007.
—, lemon crinkly leaf virus can infect, 2032m.
— mosaic virus, components and infectivity of, 3279.
— — —, conference paper on, 3306.
— — —, identification of, 1381m.
— — — on *Chenopodium amaranticolor*, 467.
— — — on cowpea in Iran, 3262; *Venezuela, 2010; incidence of, 2010; transmission of, by sap and vectors, 2010; by seed, 2106, 3262; var. react. to, 2106.
—, *Neocosmospora vasinfecta* on, *Macrophomina phaseoli* associated with and symptoms of, 83.
—, *Pseudomonas putida*, *P. syringae*, and *Serratia marcescens* on, measurement of β-glucosidase synthesis, 2373.
—, tobacco necrosis virus on, adaptation of, to heat, 1771.
—, — ring spot virus on, 2645; peroxidase isozymes in, 2112.
—, tomato ring spot virus on, adaptation of, to heat, 1771.
— virus diseases, 1381m; effect of, on growth and seed production of, 3276; infection in relation to no. of trichomes, 776.
Crambe juncea, *Alternaria brassicae* on, in U.S.A., introduced from abroad, 2437.
Cranberry (*Oxycoccus macrocarpus* and *O. palustris*), *Psilocybe agrariella* on, control, 1627.
Crataegus, apple chlorotic leaf spot virus can infect, 1601.
—, as source of infection for *Erwinia amylovora* on pear, 1d.
Creosote against *Fomes annosus* on spruce, 1329.
— as source of nutrition for *Cladosporium resinae*, 930.
— as timber preservative, 3251.
Cresonit, effect of, on development of *Penicillium* and *Trichoderma* in soil, 1027.
Criconemoides associated with cherry rasp leaf disease, 3502.
Cronartium appalachianum on pine, 1986.
— *comandrae* on pine, 1986, 2872.
— *comptoniae* on pine, 1315, 1986, 3233.
— *conigenum* on pine, 1982, 2288.
— *flaccidum* on pine, 3598.
— *fusiforme*, effect of fatty acid chain length on O uptake and decarboxylation by aeciospores of, 3362.
— —, electron microscopy of aeciospores of, 339.
— — on pine, see Pine.
— —, oxygen consumption and germination of aeciospores of, 1988.
— *occidentale* on pine, 1986.
— *quercuum* on pine, 2868, 3232, 3233.
— —, *Peridermium harknessii* on pine previously reported as, 2562a.
— *ribicola*, effect of preparation for electron microscopy on basidiospores and sterigmata of, 340.
— — on currant, 1207, 3506.
— — on gooseberry, 3506.
— — on pine, see Pine.
— — on pine, *Tuberculina* parasitizing, 401i.
Crotalaria mosaic virus, inhibition of, by pentaene G8, 422.
—, *Sesamum* phyllody virus on, in India, 3254.
*— *anagyroides*, *Helicobasidium compactum* on, in India, 3203.

[*Crotalaria*] *juncea* as indicator for bean mosaic virus, 2105.
— — *Beauveria* sp. on pests of, in India, 1392.
— —, effect of soil microorganisms on germination and growth of, 1424.
— —, *Helminthosporium tetramera* on, in India, distinct from *H. crotalariae*, hosts and symptoms of, 2731.
— *spectabilis*, bean yellow mosaic virus on, characterization and diagnosis of, 1803.
— —, cowpea virus on, transmission of, by vectors from leaf sectors of, correlated with intracellular inclusions in, 1450.
*— —, tobacco ringspot virus on, differentiation of, from previously described strs., properties of, and transmission of, to soybean, 1803.
Crown gall, see *Agrobacterium tumefaciens*.
Cruciferae, *Alternaria brassicae* and *A. brassicicola* on, C.M.I. descriptions of, 3030.
—, beet western yellows virus on, 944.
—, cauliflower mosaic virus on, revised account of, 2894.
*—, *Fusarium bulbigenum* and *F. oxysporum* f.sp. *conglutinans* on, in India, 683.
—, *Leptosphaeria maculans* on, in U.S.A., popular bulletin on, 3621.
—, *Plasmodiophora brassicae* on, in Germany, 3255; control, 3617; races of, 3255.
Crumenula pinicola on pine, 2874.
— *sororia* on pine, 2874, 3219c.
Cryptocoryneum lignicola in U.S.S.R., hosts of, 1179.
Cryptodiaporthe populea, effect of, on germ tube growth of *Nectria purtonii*, 49.
— *salicella* on *Salix*, 336, 643b.
Cryptodin against *Helminthosporium allii* on garlic, 1377j; *Xanthomonas phaseoli* on bean, 1377h; (?) as seed treatment for *Capsicum*, 720; for spinach, 3261.
Cryptogamic flora of Kazakhstan Vol. 5, 1. Sphaeropsidales, 1034.
Cryptonol as soil disinfectant, 1156.
Cryptosporella viticola on grapevine, 1218.
Cryptosporiopsis, production of antifungal substance by, 3699.
CTS against *Valsa cincta* on plum, 256.
Cucumber (*Cucumis sativus*), *Alternaria cucumerina* on, conditions of development, morphology, and symptoms of, 397j.
—, *Arabis* mosaic virus on, purification of, 1193.
— as indicator for cherry destructive canker virus, 1177.
—, cherry chlorotic-necrotic ring spot virus can infect, 255.
— chilling injury, factors affecting, 391c.
—, *Cladosporium cucumerinum* on, chemotherapeutic effect of 6-azauracil on, 3666p; of phenylthiourea on, 3666o; effect of growth regulators on resistance to, 3666n; var. react. to, 385.
—, *Colletotrichum lagenarium* on, carbohydrase activity in, 2605; control, 971, 1401; factors affecting, 2024; radioautographic evidence for induced resistance to, 718.
—, *Erysiphe cichoracearum* on, control, 386, 390t, 1401, 2344, 2345, 2379b, 2383; effect of fungicides on, 972; evaluation of fungicides against, 20; investigating action of systemic fungicides against, 2379b; source of infection of, 2345.
—, — — f.sp. *cucurbitacearum* on, control, 387.
[Cucumber], fungi on, control, 2581.
—, *Fusarium* on, 390a; control, 973.
—, — *solani* on, 1016.
*— green mottle mosaic virus on cucumbe Japan, study on, 1736; effect of temp. 2942.
—, *Moniliopsis aderholdii* on, in U.S.S factors affecting pathogenicity of, hosts and peat as reservoir of infection for, 2
— mosaic virus in Jordan, Lebanon and Sy 1045; Turkey, 1796; control, 1044; effec fat emulsions on reduction of mecha transmission of, 395c; hosts of, 3611; i dence of, 1044; inhibition of, by extr from animals, 1745n; interference am strs. of, 75b; in vitro increase in infectr of, 466; role of alternate hosts in main ance and spread of, 1058; symptoms 1044; transmission of, by vectors, 1796.
— — — on beet, 466, 689, 2102.
— — — on broad bean, 2638.
— — — on *Capsicum*, see *Capsicum*.
— — — on celery, 3611.
— — — on *Chenopodium amaranticolor*, 68
— — — on *Chrysanthemum*, 73.
— — — on *Cicer arietinum*, 3280.
— — — on cowpea, 2112, 3276.
— — — on cucumber in Bulgaria, 1044, 21 adaptation of, to heat, 1771; epidemiol of, 1745i; hosts of, 1745i; *in vitro* increas infectivity of, 466.
— — — on *Limnanthes douglassii*, 3054.
— — — on lupin, 2503.
— — — on melon, 1745j.
— — — on *Phaseolus aureus*, 2112.
— — — on *P. lunatus*, 701a, b.
— — — on *Phlox*, 228.
— — — on pimento, 1745h.
— — — on pumpkin, 1362.
— — — on rhubarb, 3294.
— — — on spinach, 3306.
— — — on tobacco, see Tobacco.
— — — on tomato, 1290, 2264, 2836.
— — — on vegetable marrow, 1362.
— — — on *Vernonia anthelmintica*, 3054.
— — +cowpea chlorotic mottle virus cowpea, 3276.
— — — necrotic str. on tobacco, 2252.
— — — str. on *Capsicum*, 1744e.
— — — — on eggplant, 721.
— — — — on Leguminosae, 75a.
— — — — on *Prunus*, 3055.
— — — — on tobacco, see Tobacco.
— — — — on vegetable marrow, 3654.
— — — — Q, inactivation of, by pancrea ribonuclease, 3388.
— — — — Y, serology of, 2640.
— — — strs. on tomato, 72.
—, *Mycosphaerella melonis* on, in Brit Honduras, 1737; *Germany, 3292; *Switz land, 2025; control, 3292; description a mode of infection, 3292; symptoms of, 17 3292.
— necrosis virus, Canadian, distinction from tobacco necrosis virus, 2107.
—, *Olpidium cucurbitacearum* on, distinction from other *O.* spp. and hosts of, 3658.
—, peach yellow bud mosaic virus on, tra mission of, by vectors, 571.
—, *Prunus* necrotic ringspot virus on, serolo cal detection of, 1193.
—, *Pseudomonas lachrymans* on, in Germa E., 2029; control, 996; relation of

)ermeability alterations to water congestion
n, 1369; severity of, 2029.
ıcumber], *Pseudoperonospora cubensis* on,
n *Bulgaria, 970; Ivory Coast, 85; S.
Africa, 969; control, 85, 969, 970; factors
ffecting, 85, 970; factors affecting longevity
of, 2346; morphology of, 85; overwintering
of, 970; symptoms of, 85; var. react. to, 969.
Pythium on, 3611.
— *aphanidermatum* on, in Ivory Coast,
norphology and symptoms of, 85.
— *myriotylum* on, susceptibility to, 2434.
root rot control, 719.
rose mosaic virus on, purification and
erology of, 843.
sclerotial fungus on roots of, 390a.
Sphaerotheca fuliginea on, in Czechoslo-
vakia, 3656; adaptation of, to heat, 1771;
control, 2347, 3655, 3693.
— — f.sp. *cucurbitacearum* on, control,
387.
, strawberry latent ringspot virus can infect,
1060.
, tobacco ringspot virus on, 2645.
, virus infection of, in relation to no. of
trichomes, 776.
*ıcumis, Erwinia tracheiphila, Erysiphe cichor-
acearum*, and *Pseudomonas lachrymans* on,
spec. react. to, 2940.
melo, see Melon.
— var. *cantaloupina*, see Cantaloupe.
sativus, see Cucumber.
ıcurbita maxima, see Squash.
pepo, see Pumpkin, Vegetable marrow.
ıcurbitaceae, melon shot hole virus on,
properties and transmission of, 3611.
, passion fruit woodiness virus can infect,
271.
, *Sclerotium rolfsii* on, susceptibility to, 1810.
, *Sphaerotheca fuliginea* on, in India, 1364;
C.M.I. description of, 1035b; identification
of, 1364.
virus diseases in Venezuela, 3306.
ıcurbitaria piceae on spruce, 359.
ılture collections, Brewing Industry Research
Foundation, 1033; functions and mainten-
ance of, 986r; Japan, Inst. for Fermentation,
1786, N.Z., 3370.
ıman against *Alternaria triticina* on wheat,
793; *Hemileia vastatrix* on coffee, 2722.
ımin (*Cuminum cyminum*), *Fusarium oxy-
sporum* f.sp. *cumini* on, effect of crop rotation
on, 866; of soil disinfection on, 279; meta-
bolites of, in relation to, 867.
nninghamella echinulata in soil, 2816.
—, reversal of inhibition of endogenous
respiration of, 3010.
pracin against *Elsinoe ampelina* on grape-
vine, 1634, 3171.
-1 against *Phytophthora infestans, Plasmopara
viticola*, and *Venturia inaequalis*, 1396.
pressus lusitanica, Poria on, in East Africa,
causing root disease, 1379d.
—, *Sclerophoma pithyophila* on, in East
Africa, 1379e.
—, suitability of, in E. Africa, 920.
pric and Cuprous, see Copper.
pritox against *Puccinia pringsheimiana* on
gooseberry, 1927.
procin against *Peronospora tabacina* on
obacco, 2834; *Phytophthora infestans* on
omato, 2836; *Pseudomonas angulata* and
P. tabaci on tobacco, 2834.
[Cuprocin] in combination against *Peronospora
tabacina, Pseudomonas angulata*, and *P.
tabaci* on tobacco, 2834.
Cupronyl against *Elsinoe ampelina* on grape-
vine, 3171.
Cuprosan against copper deficiency in apple,
2521; *Plasmopara viticola* on grapevine,
2791, 2792; *Puccinia pringsheimiana* on
gooseberry, 1927.
— super D against *Elsinoe ampelina* on grape-
vine, 1634, 3171.
Cuproxol and curitan in combination against
Fabraea maculata on pear and quince,
3495.
Curcuma amada, Taphrina maculans on, var.
react. to, 870.
— *longa*, see Turmeric.
Currant (*Ribes* spp.), *Botrytis cinerea* on,
control, 1375p.
—, *Cronartium ribicola* on, in U.S.S.R., biology
of, 1207; specialized form of, 3506.
— diseases control, 578, 1375p; revised leaflet
Min. Agric. & Fish. on, 578.
—, effect of sap on *Caragana arborescens* virus
disease, 1975.
—, *Nectria cinnabarina* on, dispersal of asco-
spores of, 3302b; factors affecting, 2031e.
—, — *galligena* on, dispersal of ascospores of,
3302b.
— reversion virus, revised edition Min. Agric.
& Fish. Bull. on, 3505.
—, *Sphaerotheca mors-uvae* on, 1743v; control,
1375q; differentiation of life-cycle of, from
S. mors-uvae on gooseberry, 2774; factors
affecting, 2774; overwintering of, 2773.
—, *Verticillium* on, factors affecting, 3159.
Curvularia lunata, see *Cochliobolus lunatus*.
— *pallescens* on stored rice, 520.
— —, sclerotial formation by, 431.
— *ramosa*, hosts of, 1094.
*— *robusta* on *Dichanthium annulatum*, *234,
553.
*— — on grasses, 234.
— *trifolii* on **Astragalus sinicus* and clover,
1175.
*— — f.sp. *gladioli* on *Gladiolus*, 3469.
— *verruciformis*, assimilation of nitrite by, 753.
Cuscuta, see Dodder.
Custard apple (*Annona reticulata*), *Cylindro-
cladium quinqueseptatum* can infect, 765.
**Cyamopsis psoraloides, Alternaria tenuis* on, in
India, 3639.
*— —, — *tenuissima* on, in India, symptoms
of, 1732.
— —, strawberry mottle virus can infect, 1625.
— —, *Xanthomonas cyamopsidis* on, effect of
light and N on, 2012.
Cyanamide against *Typhula incarnata* on barley,
2691.
Cyclamen, Erwinia on, 2357c.
—, — *carotovora* on, in Iran, hosts of, 3315.
—, *Nectria radicicola* on, in the Netherlands,
3459c.
— root rot control, 3133.
—, *Thielaviopsis basicola* on, in the Netherlands,
3459c; control, 1156, 3459c.
Cycloconium oleaginum on olive, see Olive.
Cyclododecyl-2,6-dimethyl-morpholin-acetate,
see CDM.
Cycloheximide against *Armillaria mellea*, 3696.
—, effect of carbohydrates on toxicity of, to
Pythium aphanidermatum, 426a; of N on
toxicity of, to *P. aphanidermatum*, 426b; of,

on resistance of potato to *Pseudomonas*, 2247.
[Cycloheximide], ineffective against *Cronartium comptoniae* and *C. quercuum* on pine, 3233.
— acetate against *Valsa cincta* on peach, 575.
— derivatives, factors affecting toxicity of, to *Saccharomyces pastorianus*, 746.
— semicarbazone against *Valsa cincta* on plum, 1199.
— thiosemicarbazone against *Agrobacterium tumefaciens* on cherry, 3158; *Valsa cincta* on peach, 575.
— — in combination against *Valsa cincta* on plum, 3498.
Cydonia oblonga, see Quince.
Cylindrocladium floridanum, hosts of, 3461.
*— *quinqueseptatum* on *Annona squamosa* and *Eucalyptus*, 765.
— *scoparium*, *Calonectria uniseptata* perfect state of, 2739.
— —, hosts of, 3461.
— — on *Liriodendron tulipifera*, 3305g.
*— — on *Madhuca indica*, 1930.
— — on spruce, 3243.
Cylindrosporium maculans on mulberry, 1630.
Cymbidium, *Botrytis cinerea* on, control, 2504.
—, tobacco mosaic virus str. on, 80.
Cymbopogon flexuosus, *Tolyposporium christeni*, on, in India, differentiation of, from *T. cymbopogonis*, 2513.
Cynara scolymus, see Artichoke.
Cynkotox, see Zineb.
Cynodon dactylon, *Cochliobolus cynodontis* on, in Japan, 552.
— — dead spot in U.S.A., etiology and symptoms of, 2186.
— —, *Helminthosporium cynodontis*, *H. spiciferum*, and *Ophiobolus* on, causing root rot, 2186.
Cypress, see *Cupressus*.
—, bald, see *Taxodium distichum*.
Cyprex against *Fusicladium effusum* on pecan, 1686.
**Cystopteris fragilis*, *Phyllosticta cystopteridis* on, in U.S.A., 87.
Cytophoma pruinosa, (?)inducing ash dieback, 3578.
Cytospora batangae, conidial state of *Valsa batangae*, 283.
— *capitata* and *C. personata* on apple, 565, 3153.
Cytosporina acharii, *Aphelenchoides bicaudatus* parasitizing, 1393.

2,4-D, effect of, on development of soil micro-organisms, 1027.
— preparations causing tomato malformation, 2269b.
D735 against *Corticium solani* on cotton, 2597.
—, toxicity of, to basidiomycetes, *Sclerotinia laxa*, and *Verticillium alboatrum*, 739.
Daconil against *Botrytis cinerea* on strawberry, 3164; *Gibberella fujikuroi* on *Dracaena* and *Pleomela*, 1584; *Helminthosporium heveae* on *Hevea* rubber, 1256; *Mycosphaerella berkeleyi*, 3285; *Phytophthora infestans* on tomato, 18; *Sphaerotheca fuliginea* on cucumber, 2347; *Venturia inaequalis*, 4a.
— effect of, on seed set of sweet potato, 3548.
— 2787 against *Alternaria solani* on potato, 1381j; *Botrytis cinerea* on raspberry, 2219; *Bremia lactucae* on lettuce, 1375s; *Exobasidium vexans* on tea, 621c; *Peronospora parasitica* on cabbage, 1375s, 3616; *Phytophthora infestans*, 1381j; *Sclerotinia homoeocarpa* on *Agrostis palustris* and *A. tenuis*, 27[illegible]; *Stemphylium botryosum* f.sp. *lycopersici* on tomato, 3217.
[Daconil 2787], paper on, 1743y.
Dacrymycetales in U.S.S.R., key to, 454.
Dactylaria and *Dactylella*, interaction of, with soil micro-organisms, 441.
Dactylis glomerata, *Mastigosporium rubricosum* on, in Germany, E., 2743.
— —, *Puccinia coronata* f.sp. *avenae*, *P. graminis* f.sp. *avenae*, and **P. striiformis* f. *dactylidis* on, in Argentina, incidence and virulence of, 1910.
*— —, *Xanthomonas translucens* f.sp. *hordei* in Japan, symptoms of, 1911.
Daedalea quercina, effect of apricot apoplexy tannins on growth of, 1205.
— —, on timber, 929.
Daffodil, see *Narcissus*.
Dahlia, *Entyloma dahliae* on, control, 34[illegible]
—, *Erwinia carotovora* can infect, 3315.
—, — *cytolytica* on, differentiation of, from *aroideae*, *E. atroseptica*, and *E. carotovora* and taxonomy of, 408.
— mosaic virus on ornamentals, 2357e.
— — —, resemblance of carnation J–239 virus to, 390i.
— — —, transmission of, 3901.
*—, *Mycosphaerella ligulicola* on, 1154.
— virus 4, resemblance of, to *Prunus* necrotic ring spot virus, 3901.
Dalbergia, *Phyllactinia dalbergiae* on, C.M. description of, 3731b.
*— *sissoo*, *Glomerella cingulata* on, in India, pathogenicity and symptoms of, 1682.
Dalbulus transmitting maize stunt virus, 34[illegible]
Damping-off of beet, 3260; pea, 41; pine, 3[illegible] 2863a, b; spruce, 341; tobacco, 1381e, 32[illegible]
Damson (*Prunus insititia*), *Podosphaera oxyacanthae* var. *tridactyla* on, in Switzerland, 1809.
—, *Prunus* necrotic ring spot virus on, serological demonstration of, 568.
Danthonia spicata, *Atkinsonella hypoxylon* on, growth of, in culture, 233.
Darluca filum on *Puccinia graminis* f. *avenae*, 1168a.
— —, use of, against maize rusts, 152h.
Date Palm (*Phoenix dactylifera*), declines in Mauritania, known as 'faroun', (?)relationship of *Piezodorus pallescens* to, 285.
— —, *Fusarium oxysporum* f.sp. *albedinis* in N. Africa, history and symptoms of, 2[illegible]
— —, *Omphalia pigmentata* and *O. tralucida* on, in Mauritius, distribution and importance of, 1944.
Datura, nature, properties, and purification of antiviral factor induced in, by phytic acid, 1051.
—, tomato bushy stunt virus on, differentiation of isolate on cherry from, 1620.
— *candida* and *D. sanguinea*, Colombian *Datura* virus on, 2647.
— *fastuosa*, *Cercospora medicaginis* on, as source of inoculum for, 3143.
— *inermis*, maize virus on, 150.
— *stramonium*, *Agrobacterium tumefaciens* on, effect of glycine on growth and virulence of, 1391.

atura stramonium], *Astragalus* dwarf virus can infect, 1712.
—, cucumber green mottle mosaic virus can infect, 1736.
—, effect of extracts of on potato virus X ringspot str., 470a; radish mosaic virus, 471.
—, tobacco leaf curl virus str. on, 3568.
—, — mosaic virus on, effect of, on, 2254.
—, — — — str. on, 2740.
—, tomato bushy stunt virus on, non-transmission of, by *Olpidium brassicae*, 2646.
virus, properties and serology of, 2357f.
ucus carota, see Carrot.
visomycella ampla on pine, 2562b.
fragilis on pine, 347.
azomet against *Fusarium oxysporum* f.sp. *pisi* on pea, 951.
as soil disinfectant, 951, 2584n.
BCP against nematodes and *Pythium* on pecan, 3225.
in combination, effect of, on *Pythium* on pecan, 3225.
CMO, see Vitavax.
CMOD against *Phragmidium mucronatum* on rose, *Puccinia horiana* on *Chrysanthemum*, injury to *Chrysanthemum*, 1580.
, see also Plantvax.
CNA, see 2,6,dichloro-4-nitroaniline.
D against *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* on tomato, 1970; nematodes associated with *Sclerotium rolfsii* on *Eleusine coracana*, 1113o; as soil disinfectant, 694b, 859, 951.
, effect of, on *Arabis* mosaic virus on strawberry, 859; on *Fusarium oxysporum* f.sp. *pisi* on pea, 951.
in combination as soil disinfectant, 2356e, f.
DAB against *Podosphaera leucotricha*, 2198; *Venturia inaequalis*, 250, 2198.
, toxicity of, to apple, 250, 2198.
DT (WP) in combination against vectors of sesame viruses, 2800.
ecenylsuccinic acid, effect of, on *Botrytis fabae* on broad bean, 3632.
eightoniella torulosa on banana, 2783.
— — on *Musa*, 3030.
elacroixia coronata in soil, 37.
elan against *Blumeriella jaapii* on cherry, 3302c; *Erysiphe cichoracearum* on tobacco, 1278; *Marssonina* on poplar, 3392d; *Plasmopara viticola* on grapevine, 2791; *Venturia inaequalis*, 4a.
elphacidae (?)transmitting wheat striate mosaic virus (European), 3665d.
elphacodes pellucida transmitting oat sterile dwarf virus, 1509.
striatella transmitting northern cereal mosaic virus, 3071.
elphinium, *Pseudomonas delphinii* on, control, 542.
—, *Uromyces delphinii* on, in French Alps, 46e.
eltocephalus sonorus transmitting maize stunt virus, 3432.
ematiaceae, key to identification of, 3037.
endrobium disease in Germany, symptoms of, 2180.
— *phalaenopsis*, *Gibberella fujikuroi* on, in Germany, symptoms of, 2180.
endromyza transmitting *Aplanobacter populi*, 3227.
* *Dendrophoma obscurans* on strawberry, 1743x.
Dentipratulum bialoviesense on forest trees, 323.
2-deoxy-D-glucose, effect of, on respiration of *Colletotrichum musae* and *Glomerella cingulata* on banana, 1415.
Dermea pseudotsugae on *Pseudotsuga menziesii*, 671.
* *Deschampsia caespitosa*, *Urocystis agropyri* on, subterranean sporulation by, 2184.
Detersin in combination against *Peronospora destructor* on onion, 965.
Deuteromycetes on timber, 3247.
Deuterophoma tracheiphila on *Capsicum*, 1883a.
— — on citrus, 193.
— — on herbaceous plants, tomato, and trees, 1883a.
Dexon against *Aphanomyces cochlioides* in soil, 2902; *A. euteiches* on pea, 1427; *Corticium solani* in soil, 2902; *Omphalia pigmentata* and *O. tralucida* on date palm, 1944; *Phytophthora capsici* on *Capsicum*, 2949; *Pythium aphanidermatum* and *P. ultimum* in soil, 2902; as soil disinfectant, 1427, 3301b, c.
—, effect of, on soil mycoflora, 1427.
— residues in soil, 1427.
Dianthus, *Uromyces caryophyllinus* on, in Rumania, 1377k.
— *barbatus* as indicator for carnation mottle virus, 2179.
— —, carnation latent virus and carnation mottle virus on, elimination of, by meristem tip culture, 3462.
— —, — ring spot virus on, elimination of, by meristem tip culture, 3462; transmission of, by vectors, 221.
— —, — vein mottle virus on, elimination of, by meristem tip culture, 3462.
— —, *Cylindrocladium floridanum* and *C. scoparium* on, in U.S.A., 3461.
— *caryophyllus*, see Carnation.
— *chinensis*, carnation mottle virus str. on, differentiation of carnation mottle virus str. on carnation from, 3463.
Diaphorina citri transmitting citrus greening virus, 2167; citrus leaf mottle virus, 190; citrus leaf-mottle yellows virus, 1876.
Diaporthe citri on citrus, 817.
— — on orange, 3114.
— *lokoyae* on *Pseudotsuga menziesii*, 2571.
— *perniciosa* on apple, 3151.
— — on plum, 1201, 2527.
— *phaseolorum* var. *sojae* on soybean, 1939.
Dibotryon morbosum on plum and *Prunus serotina*, 573.
Dibromochloropropane, see Nemagon.
Dichanthium annulatum, * *Curvularia robusta* on, in U.S.A., 234; description of, 553; symptoms of, and var. react. to, 234.
Dichlofluanid against *Botrytis cinerea* on *Chrysanthemum*, 390e, 836; on raspberry, 2219; on strawberry, 394a; *B. fabae* on broad bean, 419; *Bremia lactucae* on lettuce, 1375s; *Peronospora parasitica* on cabbage, 1375s, 3616; on cauliflower, 1375t; *Pezicula* on apple, 2204; *P. malicorticis* on apple, 564; *Venturia inaequalis*, 2204.
—, effect of, on *Botrytis cinerea* on strawberry, 2532, 3301a.
—, inhibition of strawberry pollen by, 3301a.
—, methods for determining residues of, in plants, 2382.
—, residues of, on raspberry, 3664e; on strawberry, 394a.

[Dichlofluanid] in combination against *Botrytis cinerea* and *Itersonilia perplexans* on *Chrysanthemum*, 390e.
Dichlone against *Bremia lactucae* on lettuce and *Peronospora parasitica* on cabbage, 1375s.
Dichloran against *Botrytis cinerea*, *Sclerotinia minor*, and *S. sclerotiorum* on lettuce, 2343.
—, effect of, on *Botrytis cinerea* on strawberry, 3163, 3301a.
— inhibition of strawberry pollen by, 3301a.
Dichlorethane in combination against *Peronospora tabacina*, 627.
2,6-dichloro-4-nitroaniline against *Botrytis allii* on onion, 380.
—, *Rhizopus stolonifer* tolerant to, 3694.
— wax emulsion against *Penicillium* on lemon, 197.
Dichlorophen against *Pezicula alba* and *P. malicorticis* on apple, 1375 l.
2,4-dichlorophenoxy-acetonitrile against *Armillaria mellea*, 3696.
5,4′-dichlorsalicylanilide against *Erysiphe cichoracearum* on cucumber, 386.
Dicotox, effect of, on development of *Penicillium* and *Trichoderma* in soil, 1027.
Didecyldimethyl ammonium bromide, see DDAB.
Didymascella thujina on *Thuja plicata*, 3219.
Didymella applanata on loganberry, 3161.
— — on raspberry, 2776, 3160, 3509.
— *lycopersici*, *Ascochyta lycopersici* preferred for imperfect state of, 1303.
— — on tomato, see Tomato.
— *macrospora* on *Iris*, 2366.
Didymellina dianthi on carnation, 3464.
Dieffenbachia, *Fusarium* and (?)*Pectobacterium parthenii* on, in the Netherlands, control and symptoms of, 3459d.
— *picta*, *Phaeosphaeria eustoma* on, 2499.
Dieldrin against *Corticium solani* on cabbage, 2306.
N,N-diethyl imidazol-1-yl phenylphosphinamidothionate against *Erysiphe cichoracearum* on cucumber, and *Phytophthora infestans* on potato, 2383.
Difolatan against *Botrytis allii* on onion, 380; *B. cinerea* on grapevine, 3172; on strawberry, 3164; *Bremia lactucae* on lettuce, 1375s; cotton boll rot, 1143; fungi on groundnut, 1731c; *Gibberella fujikuroi* on *Freesia*, 390g; *Glomerella cingulata* on coffee, 1559, 2724; *Hemileia vastatrix* on coffee, 1559; *Marssonina brunnea* on poplar, 2853; *Peronospora parasitica* on cabbage, 1375s; *Phytophthora capsici* on *Capsicum*, 2949; *P. infestans* on potato, 597e; *Sclerotinia fructigena* and *S. laxa* on plum, 1615.
—, analytical methods for, 3326.
— as seed treatment for groundnut, 2019; for pine, 3595a; as soil disinfectant, 597e.
—, effect of, on *Fusarium oxysporum* f.sp. *dianthi* on carnation, 2356h; on seed set of sweet potato, 3548; on *Verticillium cinerescens* on carnation, 2356.
—, inhibition of *Corticium solani*, *Fusarium oxysporum*, and *Sclerotium rolfsii* by, 3305a.
—, paper on, 1743 l.
— versus copper, 2724.
— in combination as seed treatment for groundnut, 2019.
— W–80 against *Guignardia citricarpa* on citrus, 1126.
Digitaria sanguinalis, maize dwarf mosaic virus on, 2144.
2,3-dihydro-5-carboxanilido-6-methyl-1,4-oxathiin, see Vitavax.
2,3-dihydro-5-carboxanilido-6-methyl-1,4-oxathiin-4,4 dioxide, see Plantvax.
Dihydroergosine, production of, by *Sphacelia sorghi*, 2478.
Dill (*Anethum graveolens*), *Cercosporidium punctum* on, 450.
**Dimeriella sacchari* on sugarcane, 302.
2,5-dimethylmorpholine-acetate against Erysiphaceae, 1374i.
Dimethylnaphthalene against *Agrobacterium tumefaciens* on fruit and *Pseudomonas savastanoi* on olive, 3322.
Dimethyl sulphoxide, see DMSO.
Dimorphotheca, potato virus Y and tobacco etch virus can infect, 1455.
Dinitroalkylphenols and crotonic esters, toxicity of, to Erysiphaceae, 1374j.
Dinitrobenzene thiocyanate against *Sclerotinia fructigena* and *S. laxa* on plum, 1615.
Dinitro-octyl-phenol methylcarbonate isomer, fungicidal activity of, 393c.
Dinitro (1-methyl-heptyl) phenyl, effect of, on uredospores of *Puccinia graminis*, 785.
Dinitrorhodanebenzene on colloidal S against *Sphaerotheca pannosa* var. *rosae* on rose, 1164.
Dinitrorhodanebenzol in combination against *Plasmopara viticola* and *Uncinula necator*, 2792.
2,6-dinitro-4-tri-fluormethyl phenol esters against *Phytophthora infestans* on potato and tomato, 3542.
Dinocap against *Sphaerotheca macularis* on strawberry, 2219.
— in combination against *Podosphaera leucotricha* and *Venturia inaequalis*, 2198.
Dinocton-*o* against *Oidium*, 3325.
— -*p* against powdery mildews and *Pyricularia oryzae* on rice, 3325.
Dinoseb, use of, for killing potato haulm, 1235c.
Dioscorea, see Yam (unless specified).
— *alata*, *Colletotrichum gloeosporioides* f.sp. *alatae* on, epidemiology of, 2952.
Diospyros kaki and *D. virginiana*, see Persimmon.
Diphenyl wraps against *Guignardia citricarpa* on orange, 1127.
Diphenylamine, see DPA.
Diphenylmethane against *Agrobacterium tumefaciens* on fruit and *Pseudomonas savastanoi* on olive, 3322.
Diplocarpon earlianum on strawberry, 860.
— *rosae* on rose, 1589.
**Diplocladium* (?)*majus* on mushroom, 2032.
Diplodia gossypina associated with cotton boll rot in Formosa, 1143.
*— *macrospora* on maize, 156.
— *maydis* on maize, 2476, 3455.
— *natalensis*, ?*Botryodiplodia theobromae* synonymous with, 1441.
— — on citrus, 2717.
— — on mango, 269, 3342.
— — on orange, 3114.
— — on timber, 3608.
— *pinea* on pine, 2271e, 2873.
— — on timber, 1333, 3249.
— *tumefaciens* on aspen and poplar, 2562d.
Diplodina lycopersici on tomato, 1303.

lodina] salicis on *Salix*, 336.
uat against artichoke atrophy, 2354.
ctory of collections and list of species naintained in N.Z., 3370.
comycetes in U.S.S.R., systematic list of, 415.
on fruit, 1598.
re-evaluation of nomenclature, phylogeny, nd taxonomy of, 3373.
cula pinicola var. *mammosa*, factors affecting rowth of, 361.
ease epidemics, analysis of progress curves f, 2035.
ulfoton as soil disinfectant, 3093.
effect of, on maize dwarf mosaic virus on naize, 3093; on incidence and severity of *Verticillium alboatrum* on cotton, 2485.
hane against *Cercospora insulana* on *Limo-ium sinuatum*, 3470.
effect of, on seed set of sweet potato, 548.
65 against *Polystigma rubrum* on plum, 2528.
M against *Typhula incarnata* on barley, 2691.
M–22 against *Peronospora tabacina* on obacco, 2256; *Phytophthora infestans*, 2961.
M–45 against *Alternaria solani* on potato, 1381j; *Marssonina brunnea* on poplar, 2853; *Mycosphaerella arachidis* on groundnut, 1356; *Phytophthora infestans* on potato, 1381j, 2240; *Plasmopara viticola* on grape-vine, 2791; *Sclerotinia squamosa* on onion, 2934; *Venturia inaequalis*, 4a.
— in combination against *Ceratocystis para-doxa* on sugarcane, 3198d.
S–31 against *Alternaria triticina* on wheat, 793.
Z–78 against *Peronospora arborescens* on opium poppy, 281; *P. destructor* on onion, 709.
— versus CL–50, 3686.
ultra against cyclamen root rot, 3133.
thianon against *Pyrenochaeta terrestris* on omato and as soil disinfectant, 391e.
-dithio-6-azauracil, fungistatic activity of, 3690.
thiocarbamates against *Helminthosporium heveae* on *Hevea* rubber, 880c; *Polystigma rubrum* on plum, 1200; *Pseudoperonospora humuli* and *Sphaerotheca macularis*, 1376h.
, chemical analysis of, 740.
inhibition of *Gloeosporium alborubrum* on *Hevea* rubber by, 880d.
residues of, in crops, 393d.
versus copper fungicides, 1200.
-trapex as soil disinfectant, 2356f.
effect of, on mycorrhiza of forest trees, 1410.
tylenchus myceliophagus, hosts of, 2077.
MSO against *Armillaria mellea*, 3696.
effect of, on tobacco mosaic virus on *Chenopodium amaranticolor*, *Nicotiana glutinosa* and *N. rustica*, 1664.
in combination against *Valsa cincta* on plum, 3498; *Venturia inaequalis*, 3491; as soil disinfectant, 3617.
MTT, see mylone.
NB, against *Fusarium oxysporum* f.sp. *aechmea* on *Aechmea fasciata*, 1374g.
as soil disinfectant, 1374g.
NOC against *Rhacodiella vitis* on grapevine, 1934, 3520.
DNOPC in combination against *Venturia inaequalis*, 250.
Dodder (*Cuscuta*), *Alternaria cuscutacidae* on, technique for culturing, 3046.
— transmitting ash yellows-type virus, 2590i; plant viruses, 1448; strawberry crinkle virus, 265.
Dodine against *Fabraea maculata* on pear, 1921; *Fusicladium effusum* on pecan, 3584; *Gnomonia leptostyla* and *Xanthomonas juglandis* on walnut, 2280; *Venturia inaequalis*, 4a, 3491, 3492.
— in combination against *Fabraea maculata* on pear and quince, 3495; *Venturia inaequalis*, 3491.
— acetate against *Venturia inaequalis*, 250.
— — in combination against *Podosphaera leucotricha* and *Venturia inaequalis*, 2198.
Doguadine against *Sclerotinia fructigena* and *S. laxa* on plum, 1615.
Dolichos enation mosaic virus on bean, 1459.
— — — —, protein composition of, 2548c.
— — — —, quality of virus affected by ambient temp., 465; serotype of tobacco mosaic virus, 465.
Dothidella ulei on *Hevea* rubber, 880e.
Dothistroma pini, conidial state of *Scirrhia pini*, 352.
— — var. *keniensis*, growth of and germination of, 1322.
— — — — on pine, 1984.
DPA against *Guignardia citricarpa* on orange, 1127; pear superficial scald, 1612.
Dracaena, *Gibberella fujikuroi* on, symptoms of, 1584.
Drazoxolan against Erysiphaceae, 1376i; *Erysiphe graminis* on cereals, 1743j; as seed dressing, 1376i.
—, properties of, 1376g.
Drechslera bicolor on wheat, 3083.
— *dictyoides* on *Festuca pratensis* and *F. rubra*, 2743.
— *halodes* in soil, 3022.
*— *sacchari* on sugarcane, 1747d.
— *stenospila* on sugarcane, 1264, 1462.
— *tetramera* in soil, 3022.
Dupont 1991 against *Botrytis cinerea* on raspberry and strawberry, 2219; *Fusicladium effusum* on pecan, 3584; grass diseases, 2509; *Penicillium digitatum* and *P. italicum* on citrus, 3442; *Sclerotinia homoeocarpa* on *Agrostis palustris* and *A. tenuis*, 2744; *Sclerotinia sclerotiorum* on bean, 1352; *Sphaerotheca fuliginea* on cucumber, 2347, 3655; on squash, 3655; *S. macularis* on raspberry and strawberry, 2219; *Ustilago striiformis* on *Poa pratensis*, 3478; as seed treatment for cucumber and squash, 3655; as soil disinfectant, 2486, 3265, 3461, 3655.
— —, fungicidal properties of, 3687.
— — in combination against *Venturia inaequalis*, 3491.
— 4472 in combination versus cyprex and duter, 1686.
Duter, action and properties of, 1743m.
— against *Fusicladium effusum* on pecan, 1686, 3584; *Microsphaera alni* on pecan, 1686; *Mycosphaerella berkeleyi*, 3284; *Septoria lycopersici* on tomato, 1968.
Duter 50–W against *Pyricularia oryzae*, 1541.
— — verus PMA, 1541.
DXN 2111 against *Tilletia* on wheat, 1840.
Dyrene against *Corticium fuciforme* on turf,

1592; *Sclerotinia homoeocarpa* on *Agrostis palustris* and *A. tenuis*, 2744; *Stemphylium botryosum* f.sp. *lycopersici* on tomato, 3217.
[Dyrene] residues on lettuce and tomato, 394a.
Dysaulacorthum vincae transmitting turnip yellows virus, 395g.

Ecballium elaterium, see Wild cucumber.
Echinochloa colonum, rice hoja blanca virus on, transmission of, by vectors, 3103.
— *crusgalli*, maize virus can infect, 150.
— *polystachya*, vectors of rice hoja blanca virus on, 1538.
Echinodontium tinctorium, nutritional requirements of, 3246.
— — on *Abies*, 3245.
— — on *A. concolor*, 1330.
— — on *A. grandis*, 2299.
— — on *A. lasiocarpa*, 2859.
— — on *Tsuga*, 3245.
Echtes Ackerbohnemosaic virus in Lithuania, 2317, 2318; U.K., properties of, 1725.
Eggplant (*Solanum melongena*), *Alternaria porri* on, effect of R.H. and temp. on infection by, 3069.
—, cucumber mosaic virus on, 1745i.
—, — — — str. on, in India, hosts and transmission of, by sap and vectors, 721.
— little leaf disease, estimating intensity of, 3660.
—, lucerne mosaic virus on, in Italy, identification and symptoms of, 2352.
— mosaic virus in Trinidad, serologically related to Andean potato latent virus, 3301n.
— — — on eggplant, relationship of, to tobacco etch virus and transmission of, by sap and vectors, 2951.
—, *Phomopsis* on, 1301.
—, — *vexans* on, factors affecting growth and sporulation of, 388.
—, *Pseudomonas solanacearum* on, 280; in Bulgaria, penetration of, 2594.
—, *Sclerotium rolfsii* on, susceptibility to, 1810.
—, stolbur virus on, in Bulgaria, 2100; symptoms of and transmission of, by vectors, 1451.
—, *Verticillium* on, susceptibility to, 478.
—, — *alboatrum* on, breeding against, 722; effect of soil temp. on, 978h.
—, — *nigrescens* on, effect of soil temp. on, 978h.
*—, — *tricorpus* on, 2658.
Ekmolin and Ekmonovocillin, effect of, on *Fomes tremulae*, 2388.
El 241 against *Sphaerotheca fuliginea* on cucumber, 2347.
Elaeis guineensis, see Oil Palm.
Elder, see *Sambucus*.
Electron microscopy of *Agrobacterium tumefaciens*, 1756; *Agropyron* mosaic virus, 3475; *Aspergillus niger*, 3739; barley stripe mosaic virus, 1498; beet yellows virus, 1999; Brazilian tomato ringspot virus, 1291; *Bromus* mosaic virus, 135; cassava mosaic virus, 724; cauliflower mosaic virus, 2572; *Chenopodium hybridum* mosaic virus, 467; clover wound tumour virus, 2428; *Colletotrichum lagenarium*, 2946, 3657; cowpea mosaic virus, 467; *Cronartium fusiforme*, 339; *C. ribicola*, 340; *Dolichos* enation mosaic virus, 1459; *Erysiphe graminis*, 1099; *Lantana horrida* virus, 2736; maize mosaic virus, 504; maize rough dwarf virus, 2472; *Melamps lini*, 830; *Olpidium brassicae*, 3740; enation mosaic virus, 3263; *Phytophth erythroseptica*, 2086; pine mycorrhiza, 1 potato aucuba mosaic virus, 1646; pot viruses S, X, and Y, 2544; *Puccinia gram* 787, 1082; *Pythium debaryanum*, 3039 *ultimum*, 1443; satellite virus of tob necrosis virus, 2425; *Sclerospora macrosp* 2627; *Tilletia caries*, 3739; tobacco m virus, 1271, 1963, 3556; tobacco ring virus, 1803; turnip mosaic virus, 4 *Ustilago avenae* and *U. hordei*, 3739; wh mosaic virus, 486.
[Electron microscopy], stereoscan, of *A moniella*, 1041.
Eleusine coracana, effect of inhibitor from germination of *Cochliobolus miyabea* 1406; of seed treatment on viability of s in storage, 1113j.
— —, factors affecting microflora of rh sphere, 808.
— —, *Helminthosporium nodulosum* on, India, virus associated with, 1534; react. to, 164.
— —, — — +virus disease on, in India, s toms of, 163.
— —, *Pseudomonas rubrilineans* not infect 804.
— —, *Sclerotium rolfsii* on, association nematodes with, 1113q; control, 113o.
— —, *Xanthomonas coracanae* on, cont 3101.
Elm (*Ulmus*), *Ceratocystis ulmi* on, in Cana 643a; U.S.A., 1683; *U.S.A. (Idaho), 16 effect of carboxylic acids on, 1307; of inc lum concentration on development of, 9 of polyphenols on discoloration caused 905; of TCPA on, 2848; histochem studies on, 652; inhibition of, by bacte 2590j; popular review of, 1683, 3222; rec rence and recovery in, 3581; resistance 3582; spread of, 643a; study on, 327; te nique for detecting, 651; var. react. to, 90
*—, *Taphrina ulmi* on, in Norway, 1680.
—, *Verticillium alboatrum* on, var. react. 907.
—, — *dahliae* on, factors affecting tolerance 2276.
Elsinoe ampelina on grapevine, 1217, 16 3171.
— *fawcettii* on citrus, 1073.
— *piri* on pear, 2524.
— *veneta* on loganberry, 3161.
— — on raspberry, 1377n, 2776.
Elvaron, effect of, on *Hapalosphaeria deform* on raspberry, 3301b.
Elymus, *Puccinia agropyri* on, resistance to, 9
—, — *graminis* ff.sp. *agropyri-repentis* *secalis* on, in Italy and Yugoslavia, 96b.
Empusa aulicae and *E. muscae*, temp. range growth of, 2357g.
Endothia parasitica, metabolism of sporulat in, 28, 2609.
— — on chestnut, 2274, 2275.
Endria inimica, multiplication of wheat str mosaic virus in, 102.
— — transmitting wheat striate mosaic vi 2123.
Endrin against vectors of sesame viruses, 28
Ensete ventricosum, *Xanthomonas musacea* on, in Ethiopia, characteristics and pat genicity of, 1389.

omophthora against *Numicia viridis* on sugar-ane, 1259b.
phidis on *Macrosiphum pisi*, 2683.
coronata, effect of air pressure on spore dis-harge in, 2967.
— on *Brevicoryne brassicae*, *Lipaphis erysimi*, nd *Myzus persicae*, 1757.
fresenii on *Coccus viridis*, 414.
oyriformis on *Rhopalosiphum insertum*, 3323.
phaerosperma, factors affecting spore ger-ination of, 3682.
thaxteriana, factors affecting spore germi-ation of, 3682.
— on *Macrosiphum pisi*, 3683.
virulenta, temp. range for growth of, 2357g.
yloma compositarum on *Gaillardia pulchella*, 585.
dahliae on *Dahlia*, 3468.
oryzae on rice, 519, 1539.
- *vignae* on cowpea, 2337.
201, effect of, on *Thielaviopsis basicola* on obacco, 1285.
icoccum nigrum on *Pseudotsuga menziesii*, 3240.
— on timber, 1990.
pipolaeum abietis on *Abies lasiocarpa*, 2562e.
longisetosum on *Salix*, 336.
adex new against powdery mildews, 20.
emothecium ashbyi on cotton, 3731b.
ica, *Phytophthora cinnamomi* on, in Germany, 1374c.
carnea, *Phytophthora citricola* on, in Germ-any, 394 l.
icaceae, fungi on, in Pacific Coastal area, 3034.
iobotrya japonica, see Loquat.
iophyidae transmitting plant viruses, 1798.
odium cicutarium and *E. moschatum*, beet yellow wilt virus on, 2312.
uca sativa, cauliflower mosaic virus on, 2308.
winia amylovora, bacteriophage studies on, 409.
—, comparison of protein patterns of, with other bacteria, 3680.
— on apple, see Apple.
— on pear, see Pear.
— on *Pyrus serotina* and *P. ussuriensis*, 2525.
— — on *Sorbus aucuparia*, 2562c.
— on tobacco, 3316.
(?)*ananas* on tomato, 899, 1678.
aroideae, differentiation of *E. cytolytica* from, 408.
— on Chinese cabbage, 2897.
— on cotton, 1576, 3456.
— on onion, 2935.
— on potato, 1747b, 3301f, 3666j.
atroseptica, differentiation of *E. cytolytica* from, 408.
— on potato, see Potato.
cancerogena on poplar, 2854.
carotovora, differentiation of *E. cytolytica* from, 408.
—, effect of antibiotics from *Trichoderma koningii* and *T. viride* on, 1405.
—, hosts of, 3315.
— in soil, 3018.
— — on carrot, 1733.
— on cyclamen, 3315.
— on lupin, 846.
— on onion, 2935.
— on potato, 2029, 3301f.
—, technique for isolating, 3681.
[*Erwinia*] *chrysanthemi*, *E. cytolytica* on *Dahlia* serologically related and similar to, 408.
— —, in Canada, intercepted from Fla, 3346.
— — on carnation, 1904, 2498.
— *cytolytica* on *Dahlia*, 408.
— *herbicola* on rice kernels, 521.
— *lathyri*, (?)causing oil palm bud rot, 595.
— *multivora* on poplar, 1311.
— *nigrofluens* and *E. rubrifaciens* on walnut, 2281.
— *stewartii* on maize, 1529, 3437.
— *tracheiphila* on *Cucumis*, 2940.
— *vitivora* on grapevine, 2797.
Erysiphaceae control, 1374i.
— of Sweden, monograph on, 449; U.S.S.R., ecological characteristics of, 1037.
—, toxicity of dinitroalkylphenols and crotonic esters to, 1374j.
Erysiphales in Hungary, 3735.
Erysiphe betae on beet, 947, 1035b, 1342.
— *cichoracearum*, conidium of, 767.
— — on *Antirrhinum majus*, 1809.
— — on *Arctium lappa*, 982.
— — on cantaloupe, 715, 2944.
— — on Compositae, 1035b.
— — on cucumber, see Cucumber.
— — on *Cucumis*, 2940.
— — on *Phlox paniculata*, 1809.
— — on squash, 1819.
— — on sunflower, 1222, 1771.
— — on tobacco, see Tobacco.
— —, taxonomic study on, 449.
— — f.sp. *cucurbitacearum* on cucumber, 387.
— — — *nicotianae* on tobacco, 315.
— *communis*, comparison of perfect state of *E. betae* with, 1342.
— — on Ranunculaceae, 539.
— *graminis*, biochemical distinction between physiologic forms of, 1821.
— —, biology of, 2586b.
— —, effect of, on plant respiration, 751.
— — on barley, see Barley.
— — on cereals, see Cereals.
— — on grasses, 1035b, 2122.
— — on oats, 1103, 1820, 3300a.
— — on *Poa pratensis*, 2509.
— — on rye, 1820.
— — on wheat, see Wheat.
— *heraclei* on Umbelliferae, 1035b.
— *martii* on clover, 1809.
— *pisi* on legumes, 1035b.
— *polygoni*, comparison of *E. betae* with, 1342.
— — on bean, 1401, 2598.
— — on cabbage, 3256.
*— — on Chinese mustard, 364.
— — on clover, 240, 2187, 3139.
*— — on Indian mustard, 364.
*?— — on lentils, 2923.
— — on pea, 2003.
— — on turnip, 1783.
— —, technique for establishing single conidial lines of, 2096.
— — +southern bean mosaic virus on bean, 3266.
— *polyphaga*, taxonomy of, 449.
— *trifolii* on legumes, 1035b.
Erythromycin, effect of, on *Xanthomonas campestris*, 1338.
—, inhibition of *Streptomyces* on potato by, 1252.

Ethanol, effect of, on rhizomorph development in *Armillaria mellea*, 1773, 3722; production of, by *Aureobasidium pullulans*, 1773.
Ethoxyquin against pear superficial scald, 1612.
Ethyl alcohol, see Ethanol.
o-Ethylbutylamidothiophosphoric acid, see Phosbutyl.
Ethylene injury to crops in U.S.A., 3701.
—, production of, by fungi, 2607.
Ethylenebisdithiocarbamates, detection of foliar deposits of, 390s.
Ethylene octadithiocarbamate in combination against lime endoxerosis and stylar-end rot, 1131.
Ethyl mercury chloride against fungi on optical instruments, 997.
**Eucalyptus*, *Cylindrocladium quinqueseptatum* on, in Brazil, *Calonectria quinqueseptata* perfect state of, 765.
—, mycorrhiza of, 2602.
—, *Phaeoseptoria eucalypti* on, susceptibility to, 328.
—, *Scleroderma cepa* and *S. verrucosum* on, forming mycorrhiza, method for introducing, 1003.
— *bicostata*, *Phaeoseptoria eucalypti* on, factors affecting deposition and germination of spores of, 1308.
— *grandis*, *Corynespora cassiicola* on, symptoms of, 654.
— *saligna* and *E. tereticornis*, *Cylindrocladium quinqueseptatum* can infect, 765.
**Euchlaena mexicana*, *Pseudomonas andropogonis* on, in Japan, 1171.
Eudarluca caricis, *in vitro* growth of, 2058.
— *filum* on *Puccinia recondita* in Yugoslavia, 2674.
Eugenia aromatica, see Clove.
— *jambos*, *Puccinia psidii* on, penetration by, 2037.
Euonymus europaeus virus, transmission of, by sap, seed, soil and vectors, 3396.
Euparen against *Botrytis* on *Gerbera*, 3459f; *B.* on *Hydrangea*, 3459g; *B. cinerea* on grapevine, 2791, 3173; *Erysiphe cichoracearum* on tobacco, 1278; *Oidium* on *Hydrangea*, 3459g; *Pyrenochaeta terrestris* on tomato, 391e; as soil disinfectant, 391e.
— injury to *Chrysanthemum*, 3131; *Gerbera*, 3459f; *Hydrangea*, 3459g.
Eupenicillium, monograph on, 3737.
Euphorbia, *Fusicladium* on, redescription of, 450.
—, *Uromyces caryophyllinus* on, in Rumania, 1377k.
*— *fulgens*, *Melampsora euphorbiae* on, in Denmark, 730c.
— *pulcherrima*, *Cylindrocladium scoparium* on, 1930.
Eurygaster, *Beauveria bassiana* on, *Melanospora parasitica* parasitizing, 2976.
Euscelis plebejus not transmitting clover enation ?virus, 2515.
— — transmitting clover phyllody virus, 3665a.
Eutettix tenella, see *Circulifer tenellus*.
Exobasidium vexans, production of auxins by, 2060.
Exosporium pampeanum on rye, *E. nattrassii*, resemblance of, to, 1512.

F-10 against *Peronospora tabacina*, 2256.
F427, toxicity of, to *Aspergillus*, basidiomycetes, and Porosporae, 739.
F461 against *Corticium solani* on cott 2597.
F-y against *Poria carbonica*, 1334.
Fabraea maculata on pear, 1920, *2587a, 34
— — on quince, 1921, 3495.
Fagopyrum esculentum, see Buckwheat.
Fagus, see Beech.
Fennel, see *Foeniculum vulgare*.
Fentin acetate against *Phytophthora infest* on potato, 3e, 607.
— — in combination against *Septoria apiic* 2023.
— hydroxide against *Peronospora fari* 2584r; *Phytophthora infestans* on potato, *Ramularia beticola*, 2584r.
Fenugreek, see *Trigonella foenum-graecum*.
Ferbam against *Cercospora gigantea* on cit 2960c; *Cronartium fusiforme* on pine, 35 *Helminthosporium heveae*, 1256; *Leptos eria salvinii* on rice, 811; lime endoxerosis a stylar-end rot, 1131; *Peronospora arbores* on opium poppy, 281; *Psilocybe agrariel* cranberry, 1627; vegetable diseases, 199
—, effect of, on *Aspergillus niger* and on 3724; on *Vaccinium angustifolium*, 858.
—, methods for determining moisture con of, 3334.
— in combination against lime endoxerosis a stylar-end rot, 1131.
Fermate against *Alternaria solani* on pota 3186.
Fernusan versus CL-50, 3686.
Fertilizers, effect of, on *Armillaria mellea* almond, 2215; *Botrytis cinerea* on pota 3191; *Cercospora coffeicola*, 1133; *Cochl bolus miyabeanus* on rice, 1122; *C. sati* on barley, 2143; *Corticium solani* *Hibiscus cannabinus*, 2730; *Diplocarp rosae*, 1589; *Erysiphe graminis* on cere 3407; *Fusarium* on larch, pine, and spru 3593; *F. culmorum* on barley, 2143; *equiseti* in soil, 1466; *F. oxysporum* f. *lycopersici*, 319; *F. solani* in soil, 15 *Lophodermium pinastri* on pine, 2865; *M ampsora lini*, 535; microflora in rhizosph of *Eleusine coracana*, 808; in soil, 8 *Pestalotia* on pine, 3239; *Pestalotiop palmarum* on coconut, 3528; *Physalospe obtusa*, 2749; *Phytophthora infestans* potato, 1238; *Polyspora lini*, 535; *Poria hy lateritia* on tea, 1962; potato virus Y potato, 1949; *Puccinia graminis* on whe 1816; *P. menthae*, 3178; *Pyrenophora te* on barley, 1101; rice bronzing, 31 *Rosellinia necatrix* on almond, 2215; *Scle tinia fructigena* and *S. laxa* on plum, 16 *Sclerotium rolfsii* on wheat, 1845; *S. rol* sclerotia, 2071; *Sesamum* phyllody virus *Brassica* and *Crotalaria*, 3254; *Sphacelothe reiliana* on maize, 3433; *Sphaerotheca m suvae* on currant, 2774; *Streptomyces* potato, 1252; *S. scabies*, 1653, 366 *Ustilago maydis*, 1520; *Verticillium* on cott 2489; currant, 3159; wheat root rots, 1495
Festuca, *Claviceps purpurea* on, in U.S.S. 1478.
—, wheat streak mosaic virus on, reservoir f 3411.
— *arundinacea* and *F. arundinacea* × *Loli multiflorum*, *Claviceps purpurea* on, alkal production by and infectivity of, 1419.
— *gigantea*, *Puccinia coronata* f.sp. *festucae* *Rhamnus purpureus* alternate host of, 3476

tuca] pratensis, *Drechslera dictyoides* and
Helminthosporium on, in Germany (E.), 2743.
ubra, *Claviceps purpurea* on, 1170.
—, *Drechslera dictyoides* and *Helmintho-*
porium on, in Germany (E.), 2743.
rillon against Fe deficiency in apple, 567.
s carica, see Fig.
lastica virus, particles of, 1805.
lomerata, *Microxyphiella hibiscifolia* on, in
ndia, 3454.
umila, *Typhula* on, study on, 543.
(*Ficus carica*) mosaic virus in Turkey, 580;
J.S.S.R., 558.
Sporidesmium sicynum on, in Rumania,
213.
vobacterium, effect of, on *Xanthomonas*
alvacearum on cotton, 1897.
x (*Linum usitatissimum*), *Aspergillus flavus*
n seed of, toxicity of, 1467.
boron and calcium deficiency and excess in,
d.
Colletotrichum linicola on, var. react. to,
899.
Corticium solani on, heterokaryosis and
virulence of, 3125; var. react. to, 3450.
diseases in Argentina, 2117.
Fusarium oxysporum f.sp. *lini* on, in Bul-
garia, 536; Iran, 3063b; U.A.R., 3457;
U.S.S.R., 535; control, 536; *Meloidogyne*
javanica associated with, 3457.
— *semitectum*, *Gibberella fujikuroi*, and
G. f. var. *subglutinans* on, in U.A.R., 3457;
Meloidogyne javanica associated with, 3457.
Melampsora lini on, in U.S.S.R., 535;
carbohydrate metabolism in, 2493a, b; effect
of actinomycin D on, 33; electron micro-
scopy of, 830; sterols in uredospores of,
1898.
Oidium lini on, in India, 537.
Phoma exigua var. *linicola* on, 1442.
Polyspora lini on, in U.S.S.R., 535.
—, *Thielaviopsis basicola* on, in Belgium,
2586a.
uoride injury to plants in U.S.A., 3700a,
3701; symptoms of, 3700c.
uorine, effect of, on apple, cherry, pear, and
plum, 248.
dder storage disorders, 2584i.
eniculum vulgare, *Cercosporidium punctum*
on, 450.
lpet against *Pseudopeziza tracheiphila* on
grapevine, 2539.
fungicidal activity of, against *Saccharo-*
myces pastorianus, 3688a, b.
mac 2 against *Fomes lignosus* on rubber,
3549d.
mannosin, biological activity and production
of, by *Fomes annosus*, 665.
mes in Hungary, 3736.
annosus, antagonism of actinomycetes to,
1794.
—, asexual nuclear behaviour and forma-
ion of conidia in, 768.
—, C and N requirements of, 3359.
— in the air, 3604.
— on *Abies concolor*, 1330.
— on Coniferae, 664, 3229.
— on forest trees, 3219.
— on pine, see Pine.
— on spruce, 1329, 2882b.
—, production of fomannosin by, 665.
ellisianus on ash, 647.
fomentarius, hosts of, 1702.
[*Fomes fomentarius*] on birch, 680.
— — on oak, 1702.
— — on spruce, 680.
— — on timber, 679, 680.
— — on trees, 1994.
— *fraxinophilus* on ash, 647.
— *igniarius* on *Acer saccharum*, 649, 1973.
— — on aspen, conspecific with *F. igniarius* f.sp. *betulae*, 914.
— — on timber, 1328.
— — on trees, 1994.
— — f.sp. *betulae* conspecific with *F. igniarius* on aspen, 914.
— *lignosus* on cacao, 2438b.
— — on *Hevea* rubber, 615, 1257, 3549d.
— *megaloporus*, *Polyporus megaloporus* should be renamed, 1331.
— *noxius* on cacao, 2438b.
— — on *Hevea* rubber, 615, 880a.
— — on kola, 2438c.
— — on oil palm, 596, 872.
— *pini* on pine, 667.
— — on spruce, 673.
— — on trees, 1994.
— *pinicola* on oak, 1702.
— — on spruce, 673, 674.
— — on trees, 1702.
— *pomaceus*, effect of apricot apoplexy tannins on growth of, 1205.
— *roseus* on timber, 681.
*— *subroseus* on aspen, 2562f.
— *torulosus* on ornamentals, 1147.
— — on trees, 1994.
*— — f.sp. *cercidis* on ornamentals, 1147.
— *tremulae*, effect of antibiotics on, 2388.
— —, inhibition of, by fungi on aspen, 2279.
— — on aspen, see Aspen.
Forest Research Institute, Norwegian, account of organization and work of Division of forest pathology and entomology, 902.
— trees, *Ascochyta* on, in U.S.S.R., biology of, 2433.
— —, *Corticium solani* on, 2284.
— —, *Dentipratulum bialoviesense* on, in Poland, 323.
— —, diseases of, in Africa and Asia, 921; Canada, Mexico, and U.S.A., 3220; U.S.S.R., 901; control, 901, 921; F.A.O. report on, 3220; study on, 3221.
— —, *Fomes annosus* on, in U.K., susceptibility to, 3219.
— —, fungi on, in Czechoslovakia, 322; Hungary, 324; Poland and U.S.A., 323.
— —, *Lophodermium pinastri* on, in N.Z., 919a.
— —, mycorrhiza of, effect of soil disinfectants on, 1410; review of, 1767.
— —, *Naemacyclus niveus* on, in N.Z., 919a.
— —, *Poria albidofusca* on, in Poland, 323.
— —, *Pythium debaryanum* on, 2284.
— —, relationship of rhizosphere and soil fungi to, 2284.
— —, *Trametella extenuata* and *T. trogii* on, in Poland, 2563.
— —, Uredinales on, in India, key to, 644.
— —, virus diseases of, 3219d; in Europe, 1043.
Formaldehyde against *Cercospora insulana* on *Limonium sinuatum*, 3470; *Chaetomium olivaceum* on mushroom, 727; *Fusarium oxysporum* f.sp. *melonis* on melon, 978q, 2349; *Helminthosporium allii* on garlic, 1377j; *Mycogone perniciosa* on mushroom, 3661; *Papulospora byssina* on mushroom, 727; *Plasmodiophora brassicae* on cabbage,

2307; *Rhacodiella vitis* on vine, 1934; *Streptomyces scabies* on potato, 1377g; as seed treatment for *Capsicum*, 720; for spinach, 3261; as soil disinfectant, 390g, 951, 1675, 3126, 3127.
[Formaldehyde], effect of, on *Fusarium oxysporum* f.sp. *pisi* on pea, 951; on *Mucor*, *Penicillium*, and *Trichoderma* in soil, 978q; on *Ustilago avenae* and *U. hordei*, 1853.
— ineffective against *Ophiobolus graminis* on wheat, 2584m.
Formol ineffective against damping-off of tobacco, 1381e.
Fragaria, see also Strawberry.
— *vesca*, strawberry crinkle virus on, symptoms of, 1928.
Fraxinus, see Ash.
Freesia, *Fusarium oxysporum* on, in Netherlands, 3459e.
—, *Gibberella fujikuroi* on, control, 390g.
Frost injury to broad bean, 1726; pine, 2878.
Fruit, *Agrobacterium tumefaciens* on, control, 3322.
— diseases in U.S.S.R., 1598; control, 986u; Rumanian book on, 3312.
—, *Fusarium equiseti* on, in Israel, 1466.
—, *Guignardia citricarpa* on, control of spraying injury to, 2032k.
— storage disorders, review of work on, 847.
—, virus diseases of, in Germany, review of work on, 2637.
— trees, fungi on, list and review of, 247.
— —, *Rosellinia necatrix* on, in Iran, 3064.
— —, *Sclerotinia cydoniae*, *S. fructigena*, and *S. laxa* on, in U.S.S.R., 3486.
— —, virus diseases of, in Bulgaria, 2100; U.S.S.R., 558.
Fruits, tropical, *Colletotrichum musae* on, 1628.
Fuclasin against *Coniella diplodiella* on grapevine, 1935.
— F against *Sclerotinia linhartiana* on quince, 397h.
— ultra against *Peronospora parasitica* on cabbage, 2896; *Plasmodiophora brassicae* on cabbage, 2307; *Polystigma rubrum* on plum, 2528; *Sclerotinia linhartiana* on quince, 397h.
Fumazone as soil disinfectant, 3595a.
Fungal hyperparasites, mode of action of, 2036.
— symbiosis, Presidential address to British Mycological Society on, 2049.
Fungi, Advanced treatise on, Vol. III, The fungal population, 3676.
—, biology of wood destroying, translation of Czech book, 1698.
—, electrophoretic patterns of proteins in identification of, 2626.
—, list of, in Hungary, 44, 1437, 2619, 3735, 3736; in Iran, 2114; S.W. Pakistan, 3734; Portugal, 2078; Zambia, 84.
—, lists of, see also Mycoflora.
— on timber, German book on, 1699.
—, transport of nutrients in mycelium of, 2611a, b.
—, hypogeous, ecology of, in Torino Arboretum, 3706.
—, mycotrophic, effect of organic N: carbohydrate ratio on, 36.
—, nematophagous, 3331; ecology of, 3364c; interaction of *Aphelenchus avenae* and, in dual culture, 3029.
*—, thermophilic, in India, isolation of, 3674.
Fungicide-nematocide tests, Results of 1967, publication on, 2377.
Fungicides Vol. 1, Agricultural and indust applications; environmental interacti 1395.
—, analytical methods for, 3326.
—, antagonism and synergism of, review literature on, 3328.
—, distribution and residues of, 3330.
—, effect of, on photosynthesis in plants, 9 on resistance to plant diseases, 16.
—, guide to new compounds, 3325.
—, methods for determining moisture con of, 3334.
—, official FDA tolerances, annual revisio 2979.
—, Polish manual for crop protection 2980.
—, review of literature on, 1762; of meth for testing in U.S.S.R. against *Tilletia ca* and *T. foetida*, 1841; of mode of action toxicity of, 2600; of properties affec deposits of, 1376g.
—, Rumanian, action of, 3333.
—, selectivity tests of, 2601.
—, technique for assaying against *Leptosph salvinii*, 3336; for determining penetration in plant tissues, 3329.
—, vapour action of, against powdery mildd 418.
Fungitox against fungi on cucumber, 2581
Fungus growth and metabolism, effect gaseous environments on, 3713.
— spores, disintegration of, 3728.
**Furcaspora pinicola* on *Abies concolor*, 2
Furidazole as seed treatment for cere 1819.
—, effect of, on *Erysiphe cichoracearum* squash, 1819.
Fusarium acuminatum on Leguminosae, 2
— — on lupin, 2190, 2319.
— *argillaceum* on tobacco, 3565.
— *avenaceum*, antagonism of mycolytic bacteria to, 2074.
— — associated with clover 'purple patch' W. Australia, 241.
— — in soil, 1781.
— — on carnation, 3126.
— — on lupin, 2190.
— — on maize, 1111, 1861.
— — var. *herbarum* on Leguminosae and lu 2319.
— *batatatis* on sweet potato, 2248.
— *betae* on beet, stored, 2903.
*— *bulbigenum* on Cruciferae and onion,
— — var. *blasticola* on spruce, 3242.
— *caeruleum* on potato, see Potato.
— *culmorum*, antagonism of *Cephalospor gramineum* and *Trichoderma* to, 3027.
— —, hosts of, 1094.
— — in soil, 810, 1781.
— — on barley, 2143.
— — on maize, 1110, 1111, 1861.
— — on wheat, 124, 401a, 1093.
— *dimerum*, effect of C and N sources growth of, 1418; of makrolin on, 2983 S-3 on, 2982.
— — on wheat, 2132.
— *episphaeria* in soil, 810.
— *equiseti* in soil, 1466, 1781.
— — on plants and seed, 1466.
— *gibbosum* on cucumber, 2581.
— *hyperoxysporum* on sweet potato, 2248.
— *javanicum* in soil, 2884.
— — on lupin, 2190, 2319.

arium javanicum] var. *radicicola*, antagnism of soil bacteria to, 2074.
— — — on cucumber, 2581.
ateritium, effect of biotin on, 2056; of rganic N: carbohydrate ratio on, 36.
?)— f.sp. *ciceri* on *Cicer arietinum*, 3280.
rthoceras f.sp. *lentis* on lentil, 435.
oxysporum, antagonism of antibiotic from *hizopogon roseolus* and *Tricholoma saponaeum* to, 1764.
—, associated with clover 'purple patch' in V. Australia, 241.
—, ecology and pathogenicity of, 39.
— in sewage, 2392.
— in soil, 40, 810, 1427, 2073, 2484.
—, inhibition of, by difolatan and quintoene, 3305a.
—, nuclear division in, 3376.
—, nutrient requirements for fusac acidri ynthesis by, 2590b.
— on *Asparagus*, 2032h.
— on barley roots, 1022b.
— on beet, stored, 2903.
— on broccoli, 2435.
— on *Capsicum*, 720.
— on clover, 555, 2188.
— on cotton, 2435.
— on cucumber, 2581.
— on *Freesia*, 3459e.
— on larch cones, 2300.
— on Leguminosae, 2319.
— on lucerne seed, 1176.
— on lupin, 694c, 2190, 2319.
— on maize, 1111.
— on oil palm, 595, 3532.
— on pea, 694a, c.
— on pine, 923, 1318, 2863b.
— on *Setaria italica* seeds, 2154.
— on sorghum, 2153.
— on tomato, 1302, 2435.
— on *Trichosanthes dioica*, 3061.
— on vetch, 2032f.
— on wheat, 496, 1495.
—, protein patterns in, 3374.
—, review of literature on, 39.
—, sporostatic products of, 2052.
—, sterol and fatty acid components of mycelium of, 436.
— + *Meloidogyne hapla* on *Chrysanthemum*, 225.
— f.sp. *aechmea* on *Aechmea fasciata*, 1374g.
— — *albedinis* on date palm, 284.
— — *apii* on pea, 695.
— — *asparagi* on *Asparagus*, 1a.
— — *batatas* on tomato, 1295.
— — *callistephi*, heterokaryosis in, 1790.
— — — on aster, 3063b.
— — *cepae* on onion, 2021.
— — *conglutinans* on cabbage, *683, 3256.
— — — — on Cruciferae and onion, 683.
— — *cubense* on banana, see Banana.
— — *cumini* on cumin, 279, 866, 867.
— — *dianthi* on carnation, see Carnation.
— — *gladioli*, *Aphelenchoides composticola* and *Ditylenchus myceliophagus* on, 2077.
— — — on *Gladiolus*, see *Gladiolus*.
— — *lactucae* on lettuce, 2580.
— — *lagenariae* on *Lagenaria vulgaris* var. *hispida*, 1366.
— — *lini* on flax, see Flax.
— — — on linseed, 1578.
— — *lupini* on lupin, 1743c.
[*Fusarium oxysporum* f.sp.] *lycopersici*, effect of 5-bromouracil on production of fusaric acid by, 1015.
— — — —, inhibition of cellulase from, 1296.
— — — *melonis*, *Aphelenchoides composticola* on, 2077.
— — — —, biotin requirement by mutant str. of, 1368.
— — — —, *Ditylenchus myceliophagus* on, 2077.
— — — — on melon, see Melon.
— — — *perniciosum* on *Albizia julibrissin*, 1681.
— — — *phaseoli* on bean, *953, *1723, 2323b.
— — — *pisi* on pea, see Pea.
— — — —, utilization of pisatin by, 1722.
*— — — *spinaciae* on spinach, 2316.
— — — *tracheiphilum* on soybean, 1939.
— — — — on tomato, 1295.
— — — *tulipae* on tulip, 231, 844, 1165.
— — — *vanillae* on vanilla, 2960f.
— — — *vasinfectum*, effect of anabasin and benzthiazolyl-thioacetic acid on, 1012, 1013; antibiotics from *Trichoderma* spp. on, 1405; phenolic compounds on, 3666k.
— — — — in soil, 2484.
— — — —, inhibition of, by mushroom, 2954.
— *poae* on barley and Leguminosae, 2321.
— — on maize, 1111, 1112.
— — on pea, 2321.
— *redolens* on carnation, 3459a.
— — f.sp. *dianthi* on carnation, 1c, 3069.
— *roseum* in France, hosts of, 99.
— — in soil, 810.
— —, nutrition of, 756.
— — on cantaloupe, 2582.
— — on carnation, 1582, 2356e, g, 3464.
— — on cereals, 1077.
— — on clover, 2188.
— — on *Coronilla varia*, 541.
— — on cotton, 528.
— (?)— on *Hibiscus cannabinus*, 1579.
— — on tomato, 898, 3218.
— — on turf, 551.
— — + *Verticillium alboatrum* on cotton, 528.
— — f.sp. *cerealis* 'Culmorum' in soil, 3430.
— — — — — on cereals, 1818.
— — — — — on oats, 3430.
— — — — — on wheat straw, 2131, 3430.
— — — *phaseoli* on bean, 2323a, b.
— — 'Avenaceum' on clover, 3141.
— — 'Gibbosum' on banana, 2221.
— *sambucinum* on lupin, 2190.
— — on potato, 3184.
— — var. *minus* on Leguminosae, 2319.
— *scirpi* on maize, 1111.
— — on wheat, 496.
— — f.sp. *acuminatum*, antagonism of soil bacteria to, 2074.
— *semitectum* on flax, 3457.
— — on wheat, 2132.
— *solani*, effect of S–3 on, 2982.
— —, hosts of, 1016.
— — in sewage, 2392.
— — in soil, 760, 810, 1555, 2073.
— —, inhibition of, by *Streptomyces rimosus*, 978d.
— — on cantaloupe, 2582.
— — on clover, 555, 2188.
— — on cotton, 204.
— — on groundnut, 3645.
— — on guava, 3168, 3514.
— — on *Hibiscus cannabinus*, 3457.
— — on lime, 194.

[*Fusarium solani*] on *Matthiola*, 3126.
— — on oil palm, 3532.
— — on papaw, 3061.
— — on pine, 2863b.
*— — on poplar, 913.
— — on potato, 2237, 2816.
— — on spinach, 3261.
— — on teak, 3591.
— — on tomato, 2840.
— — on vegetables, 2893.
— — on wheat, 1495.
— — f.sp. *cucurbitae*, membrane functions and tolerance to diphenyl in, 1402.
— — — — on *Momordica charantia*, 3061.
— — — — on squash, 1367, 2583.
— — — *phaseoli*, effect of *Aphelenchus avenae* on, 2076; tannins on spore germination and growth of, 1775.
— — — — in soil, see Soil.
— — — —, loss of antagonism by *Chaetomium cochlioides* and *C. globosum* to, 2910.
— — — — on bean, see Bean.
— — — *pisi*, effect of *Aphelenchus avenae* on, 2076.
— — — —, inhibition of, by *Streptomyces rimosus*, 978d.
— — — — on pea, 2322, 2908.
— — — — +*Pythium* on pea, 952.
— — var. *coeruleum* on lupin, 2190, 2319.
*— — — *minus* on coffee, 202.
— *sporotrichioides* on wheat, 496.
— *stilboides* on coffee, 399d, 1558, 1891.
— — on orange, 818.
— *udum* on pigeon pea, 374.
*— *versiforme* on *Hosta*, 2732.
Fusicladium effusum on pecan, 1686, 3584.
— *fautreyi*, description of, 450.
*— *fraxini* on ash, 3219.
Fusicoccum amygdali on almond, 854, 2770, 3500a, b.
— — on peach, 1202, 2213.
Fytostrep against (?)*Pectobacterium parthenii* on *Dieffenbachia*, 3459d.

Gaillardia pulchella, *Entyloma compositarum* on, in Yugoslavia, (?) introduced from N. America, 1585.
Gamma radiation, effect of, on *Erysiphe graminis* on barley, 500.
— — in combination against fungi on citrus, 2717.
Ganoderma in Hungary, 3736.
— *applanatum* on citrus, 817.
— — on ornamentals, 1147.
— — on timber, 679.
— — on trees, 1994.
— *boninense* and *G. chalceum* on oil palm, 1945.
— *lucidum*, formation of phenoloxidases in, 3008.
— — on *Casuarina equisetifolia*, 3580.
— — on oil palm, 872.
— *miniatocinctum* on oil palm, 1945.
— *pfeifferi* and *G. resinaceum*, formation of phenoloxidases in, 3008.
— *tornatum*, *G. xylonides*, and *G. zonatum* on oil palm, 1945.
Garlic (*Allium sativum*), *Helminthosporium allii* on, in Rumania, 1377j.
—, *Heterosporium allii* f.sp. *allii-sativi* on, description of, 451.
— mosaic virus on garlic, control, 1745m.
[Garlic], *Sclerotium cepivorum* on, 3611; ef of volatile products from, on sclerotial ger nation, 2932.
Geotrichum candidum, inhibition of, by syrin mycin, 1203.
— — in sewage, 2392.
— — on lemon, 2720.
— — var. *citri-aurantii* on citrus, 2717.
Gerbera, *Botrytis*, *Phytophthora cryptogea*, *Verticillium* on, in Netherlands, 3459f.
*—*jamesonii*, tobacco rattle virus on, Netherlands, 1157.
Germisan as seed treatment for rye, 146; s flower, 2231.
Gibberella avenacea on cereals, 1818.
— *baccata* on *Hibiscus cannabinus*, 3457.
— *fujikuroi*, assimilation of nitrite by, 753.
— —, associated with clover 'purple patch W. Australia, 241.
— —, effect of phosphoric acid derivatives 1763.
— — in soil, 810, 2484.
— — on banana, 2782.
— — on cotton, 1575.
*— — on *Dendrobium phalaenopsis*, 2180.
— — on *Dracaena*, 1584.
— — on flax, 3457.
— — on *Freesia*, 390g.
— — on maize, see Maize.
— — on *Pleomela*, 1584.
— — on rice, 520, 1865b.
— — on sorghum, 2153.
*— — on sugarcane, 3553.
— — var. *subglutinans* on *Asparagus*, 2032
— — — — on flax, 3457.
*— — — — on *Nerine bowdenii*, 1159.
— — — — on wheat, 2132.
— *zeae*, antagonism of soil bacteria to, 2
— —, associated with clover 'purple patch W. Australia, 241.
— —, effect of diurnal temp. fluctuations 1413; of pH on, 3358.
— —, hosts of, 1094.
— — on maize, see Maize.
— — on vetch, 1915.
— — on wheat, 495, 496, 1495.
— — on wheat straw, 123, 124, 3086.
Gibberellic acid, effect of, on tobacco leaf virus on tomato, 634; on tomato aspe virus, 3212.
Gibberellin, system for naming, 984.
Gilmaniella humicola on potato, 1649.
*Ginger (*Zingiber officinalis*), *Pseudom solanacearum* on, in Queensland, biotype 280.
Ginkgo biloba, resistance of, to micro-organis 1316.
Gladiolus, aster yellows virus and bean ye mosaic virus on, in U.S.S.R., 2366.
*—, *Curvularia trifolii* f.sp. *gladioli* on, India, 3469.
— diseases in France, identification table 3134.
—, *Fusarium oxysporum* f.sp. *gladioli* on, trol, 1907; cultural studies on, 1908.
—, *Penicillium gladioli* on, cultural studies 1908.
—, *Sclerotinia draytonii* on, in Argent damage caused by, 2182.
*—, *Septoria gladioli* on, in India, 544.
— ?virus disease in Brazil, symptoms of, 21
Glass, fungi on, evaluation of fungic against, 997.

liocladium deliquescens and *G. fimbriatum*, antagonism of, to *Trametes sanguinea*, 2304.
loeocercospora sorghi on sorghum, 594, 1113i, l, 1536.
— — on *Vetiveria zizanioides*, 594.
loeosporium albo-rubrum on *Hevea* rubber, see Rubber.
- *ampelophagum* on grapevine, 2538.
- *amygdalinum* on almond, 855, 1924.
- *concentricum* on Brussels sprouts, broccoli, cabbage, and turnip, 939.
- *olivarum*, toxin from, 3666g.
- *polystigmicola*, parasitizing *Polystigma rubrum* on plum, 563.
- *psidii* on guava, 2784.
- *quercinum* imperfect state of *Gnomonia quercina*, 911.
loeotinia temulenta on *Lolium perenne*, 2509.
lomerella cingulata, antagonism of soil bacteria to, 2074.
— —, factors affecting sporulation of, 434, 1414.
— —, heterokaryosis in, 456.
— — in soil, 1431.
— —, morphological variability of, 456a.
— — on apple, 1073, 1603, 3007.
— — on *Arceuthobium americanum*, 337.
— — on avocado pear, 3167.
— — on banana, 1415, 1416.
— — on *Capsicum*, 720, 980c.
— — on citrus, 432, 2062, 2717.
— — on coffee, see Coffee.
— — on *Dalbergia sissoo*, 1682.
— — on *Hevea* rubber, 3059b.
— — on *Hydrangea hortensis*, 3135.
— — on *Litchi chinensis*, 864.
— — on lupin, 1596.
— — on mango, 432, 2062.
— — on onion, 2021.
— — on orange, 818.
— — on *Plumeria acutifolia*, 548.
— — on *Salix*, 336.
— — on yam, 432.
— — on *Zizyphus jujuba*, 3170.
— —, pectolytic enzymes of, 1769h.
— —, spore germination of, 433.
— —, utilization of monosaccharides by, 26.
— — var. *orbiculare*, factors affecting sporulation of, 1414.
- *glycines* on soybean, see Soybean.
- *gossypii* on cotton, see Cotton.
- *tucumanensis*, C.M.I. description of, 42.
— — on sugarcane, see Sugarcane.
— —, physiological study on, 618.
Glonium pyricolum on pear, 86.
Glycerine in combination against *Xanthomonas campestris* on cabbage, 996.
Glycerol as wound dressing, 3496.
Glycine, effect of, on *Agrobacterium tumefaciens*, 1391.
Glycine max, see Soybean.
Glyodex against *Venturia inaequalis*, 4a.
Glyodin against *Cercospora nicotianae* on tobacco, 2831.
— in combination against *Venturia inaequalis*, 3491.
Gnomonia erythrostoma on apricot, 1619.
— *fragariae* on strawberry, 1743x.
- *leptostyla* on walnut, 917, 2280, 2759.
- *platani* on *Acer pseudoplatanus*, 911, 2273.
- *quercina* on oak, 911.
- *rubi* on blackberry and rose, 2357d.
Gnomoniaceae on fruit, 1598.
Godronia cassandrae, hosts of, 2565.
— *fuliginosa* on aspen and *Salix*, 3588.
Gomphrena globosa, *Hippeastrum* mosaic virus on, 540.
— —, potato virus X on, 2254; factors affecting resistance to, 778.
— —, — — — ring spot str. on, inhibition of, by chemicals, plant extracts, and *Trichothecium roseum*, 470a.
— —, red clover vein mosaic virus on, effect of mannose on, 1461.
— —, strawberry mottle virus can infect, 1625.
Gonatobotrys zeae on maize, 3305b.
Gooseberry (*Ribes grossularia*), *Cronartium ribicola* on, specialized form of, 3506.
—, *Pseudopeziza ribis* on, sexual development in, 1440.
—, *Puccinia pringsheimiana* on, in U.S.S.R., 1927.
—, *Septoria ribis* on, control, 2772.
—, *Sphaerotheca mors-uvae* on, control, 2531; evaluation of fungicides against, 20; overwintering of, 2773.
— veinbanding virus on gooseberry, methods for producing virus-free plants, 3162a.
Gossypium, see Cotton.
Gramicidin, effect of, on *Fomes tremulae*, 2388.
Gramineae, barley yellow dwarf virus on, in U.S.S.R., 232.
—, *Cochliobolus carbonum* on, genetics of, 3480.
—, pyrenomycetes on, in Fennoscandia, taxonomy, of, 763a, b, c.
— virus diseases in U.S.S.R., 232.
—, wheat mosaic and wheat streak mosaic viruses on, in U.S.S.R., 232.
Gramoxone against *Phytophthora infestans* on potato, 2241.
Granosan against *Ustilago avenae* on oats, 1511; as seed treatment for cabbage, 1339; *Capsicum*, 720; *Cicer arietinum*, 2009; maize, 3096; rye, 146; soybean, 2920; sunflower, 2231; wheat, 120, 1491, 2446.
— in combination as seed treatment for wheat, 1491.
— M against *Alternaria macrospora* on cotton, 1143.
Grapefruit (*Citrus paradisi*), citrus exocortis virus on, in Japan, colour test for, 2165.
—, — greening virus on, in India, symptoms and transmission of, by vectors, 2167 .
—, — 'impietratura' virus on, 1881; effect of rootstock on, 188, 1123a.
—, — stubborn disease virus on, symptoms of, 187.
—, — tristeza virus on, in India, 522.
—, *Xanthomonas citri* on, in Argentina, 1556.
Grapevine (*Vitis*), *Agrobacterium tumefaciens* on, in Bulgaria, 2541; Chile, 581.
—, *Alternaria* on, in U.S.S.R., 274.
—, *Arabis* mosaic virus on, detection and incidence of, 5836.
—, *Botrytis cinerea* on, in Austria, 2030; France, 1743i; U.S.S.R., 2538; apothecial state of, 2227; control, 276, 3971, 1743i, 2538, 2791, 2792, 2796, 3172, 3173, 3521, 3522; factors affecting, 1936, 3521; symptoms of, 2538.
— canker, ?*Agrobacterium tumefaciens* and frost causing, 2540.
—, *Cercospora* on, in U.S.S.R., 274.
— chrome mosaic virus, effect of gel filtration on, 1216, 1744a.

[Grapevine chrome mosaic virus] on grapevine, transmission of, by grafting, 1215.
—, *Coniella diplodiella* on, control and factors affecting, 1935.
— corky bark virus on grapevine in Mexico, 2789.
—, *Cryptosporella viticola* on, in U.S.A., 1218.
— disease in Hungary, resemblance of, to grapevine rugose wood, 3519.
— diseases in Chile, 581; Mexico, 2789; U.S.A., 3516; Rumanian book on, 3312.
—, *Elsinoe ampelina* on, in S. Australia, 1217; U.S.S.R., 1634; control, 1217, 1634, 3171; factors affecting, 1634.
—, *Erwinia vitivora* on, blackening caused by, 2797.
— fanleaf virus, effect of pH on negative staining of, 2790.
— — — on *Chenopodium amaranticolor* and *C. quinoa*, 469.
— — — on grapevine, 396; in Bulgaria, 1632; Chile, 581; Israel, 3518; Italy, 2226; Mexico, 2789; control, 581; detection of, 583b, 1632; incidence of, 583b; transmission of, by grafting, 1215.
— — —, technique for inoculating *Xiphinema index* with, 2537.
—, fungi on, list and review of, 247.
—, *Fusarium* on, control, 3173.
—, *Gloeosporium ampelophagum* on, in U.S.S.R., 2538.
— infectious degeneration virus on grapevine in Switzerland, effect of soil treatment against vectors, 2589.
— leafroll virus on grapevine in Bulgaria, 1632; Chile, 581; Israel, 3518; Mexico, 2789; anatomic effects and history of, 865; control, 581; detection of, 1632.
*—, *Massariella viticola* on, in U.S.S.R., 86.
— necrotic ring spot, development and symptoms of, 2747.
—, *Penicillium claviforme* and *P. martensii* on, diagnoses of, 3523.
— pests and diseases, monograph on, 273.
—, *Phoma* on, aetiology of, 2795.
—, *Phomopsis viticola* on, in Italy, 2226; aetiology of, 2795.
—, *Phymatotrichum omnivorum* on, in Mexico, 2789.
—, *Plasmopara viticola* on, in France, 1743i; Italy, 2226; Mexico, 2789; Rumania, 1377o; S. Australia, 1217; U.S.S.R., 2538; control, 392a, 396, 1217, 1377o, 1396, 1398, 1743i, 2225, 2226, 2379a, 2538, 2791, 2792; factors affecting, 1377o, 1633, 2226; forecasting of, 1808; methods for assessing efficiency of control, 2379a; symptoms of, 2538; technique for determining spore composition in, 1374p.
—, *Physopella ampelopsidis* on, C.M.I. description of, 3731a.
—, *Pseudopeziza tracheiphila* on, in Austria, 587; France, 275; Germany, 272; Switzerland, 2539; control, 1219, 2225, 2539; epidemiology of, 2797; factors affecting, 272, 275, 1219, 2539; symptoms of, 587; var. react. to, 275.
—, *Rhacodiella vitis* on, in U.S.S.R., 1934, 2538; control, 1934, 2538, 3520; development of, 3520; factors affecting, 3520; symptoms of, 2538, 2797; var. react. to, 588.
—, *Rhizoctonia* on, control, 3173.
— storage disorders, effect of temp. on, 276.
[Grapevine], tobacco mosaic virus on, U.S.A., 3517; detection of, 583a, b; incidence of, 583b; transmission of, 2224.
—, tomato black ring virus on, detection and incidence of, 583b.
—, — bushy stunt virus on, in Germany, demonstration of, 1214.
—, toxicity of Cu preparations to, 2791.
—, *Uncinula necator* on, in Chile, 581; France, 1743i; Italy, 2226; Mexico, 2789; S. Australia, 1217; U.S.S.R., 274, 2538; C.M.I. description of, 1035b; control, 274, 392, 581, 584, 1217, 1743i, 2226, 2538, 2791, 2792, 2793; factors affecting, 2226; forecasting of, 1808; importance of ascus stage of, 330; inoculation of, 586; overwintering of, 58; symptoms of, 2538; var. react. to, 583, 58; warning system against, 397g.
— virus diseases in Bulgaria, 1632, 210; Mexico, 2789; control, 2747; development and symptoms of, 2747; technique for inoculating, 582.
— yellow mosaic and yellow vein viruses of grapevine in Bulgaria, detection of, 163.
Graphium persica on peach, 2767.
— *roborum* on oak, 329.
Grass, Guatemala, see *Tripsacum laxum*.
Grasses (see also Gramineae and Turf)
Ascochyta on, in U.S.S.R., biology of, 243
—, *Bromus* mosaic virus on, 1167.
—, *Cercosporella herpotrichoides* on, 2357b.
—, *Claviceps purpurea* on, 1170; in France, 11
—, *Corticium fuciforme* on, in Germany, 39
—, **Curvularia robusta* on, in U.S.A., sym toms of, 234.
—, diseases of, review of resistance to, 1591.
—, Erysiphaceae on, in U.S.S.R., 1037.
—, *Erysiphe graminis* on, in U.S.S.R., 212 C.M.I. description of, 1035b; ff.sp. of, 212
—, foot rot of, 1094.
—, *Puccinia graminis* on, physiologic races of 3404.
—, pyrenomycetes on, in Fennoscandia, 763
—, virus diseases in Britain, review of, 3474.
—, wheat streak mosaic virus on, reservoir fo 3411.
Greengage (*Prunus domestica* var. *italica*), plu pox virus on, transmission of, to *Chenopo dium foetidum*, 2357i.
Griphosphaeria corticola on apple, 1603.
— — on rose, 1746c.
Griseofulvin against *Alternaria solani* o tomato, 3697; *Botrytis cinerea* on lettuc 3697; *Cochliobolus miyabeanus* on rice, 17 plant diseases in Hungary, 1404.
Groundnut (*Arachis hypogaea*), analysis endogeocarpic microflora of, 3644.
—, *Aspergillus* on, detection of, 2014.
—, — *flavus* on, 3645; in Nigeria, 2587b, Senegal, 1462; U.S.A., 1731d, 3643, 364 aflatoxin production by, 708, 1462, 201 association of nematodes with, 376, 364 control, 1462, 2587c; effect of fast and slo drying on, 1731d; of fungicides and insect cides on, 2016; of wetting on, 3646; facto affecting, 2587b; penetration by, 2359 technique for isolating, 58.
*—, — *micro-virido-citrinus* on, detection o 2014.
—, — *niger* on, 3645; in India, 3287; U.S.A 1731d, 3643; association of nematodes wit 376, 3643; control by crop rotation, 328 detection of, 2014; effect of fast and slo

drying on, 1731d; of fungicides and insecticides on, 2016; factors affecting, 3287.
Groundnut, *Aspergillus*] *versicolor* on, 3645.
—, *Bacillus subtilis* on, inhibition of fungi by, 2017.
—, bacteria on, isolation density of, 3644.
—, bean yellow mosaic virus on, in Bulgaria, resistance to, 1460.
— bud necrosis virus on groundnut in India, transmission of, by grafting, 2927.
—, *Calonectria crotalariae* on, effect of plant age and soil temp. on, 962.
—, *Cercospora* on, in Colombia, 1939.
—, *Chaetomium* on, in U.S.A., 3644.
— chlorotic rosette virus on groundnut in S. Africa, 2925; assistor virus in relation to transmission of, 3640.
— clump in Senegal, aetiology and symptoms of, 83.
*—, *Colletotrichum dematium* on, in India, 961.
—, *Corticium solani* on, in U.S.A., 1731a.
— diseases in Italy, 1807.
— 'fat leg', effect of seed treatment fungicides and seed quality on, 2019.
—, fungi on, in U.S.A., 1731b, c, 3643; control, 1731c; effect of nematodes on, 3643; of seed treatment on, 963, 2338; of soil disinfection on, 1731b; isolation density of, 3644.
—, *Fusarium* on, in Israel, 2579; U.S.A., 3644; detection of, 2014.
—, — on stored, effect of wetting on infection by, 3646.
—, — *equiseti* on stored in Israel, 1466.
—, — *solani* on, 3645.
— green rosette virus on groundnut in S. Africa, transmission of, by grafting and vectors, 3283.
*—, *Leptosphaerulina arachidicola* on, in India, 3642.
—, — *crassiasca* on, in Argentina, India, and U.S.A., 2928.
—, *Macrophomina phaseoli* on, 196; in Senegal, 1462; association of nematodes with, 376; control, 377, 2014; detection of, 2014; factors affecting, 377; study on, 377; var. react. to, 377, 378.
—, — — on stored, effect of wetting on infection by, 3646.
— mottle virus on groundnut in U.S.A. and abroad, screening for immunity from, 2926.
—, mould fungi on, penetration by, 2359e.
—, mycoflora of, composition and distribution of, 2018.
—, *Mycosphaerella arachidis* on, in India, 1730; Malawi, 2013; Rhodesia, 3d; control, 1356; effect of sowing dates on, 1730; of S and Zn+maneb on, 3d; factors affecting, 1730, 2013; var. react. to, 707.
—, — *berkeleyi* on, in India, 961, 1730; Israel, 3285; control, 3284, 3285, 3641; *Cercosporidium personatum* conidial state of, 450; effect of sowing dates on, 1730; factors affecting, 1730, 3285; symptoms of, 3285; var. react. to, 707, 3285.
—, *Penicillium* on, in U.S.A., 3644; detection of, 2014.
—, — *rubrum* on, 3645.
—, *Phyllosticta arachidicola-hypogaeae* on, in (?)Nigeria, 2587c.
—, *Puccinia arachidis* on, in Colombia, 1939.
—, *Pythium* on, in Israel, 2579, 3286; resistance to, 3286.
[Groundnut, *Pythium*] *myriotylum* on, in Israel, 2579; Nigeria, 2587b.
— rosette, aetiology of, 3640.
— — virus on clover, 960.
— — — on groundnut in India, 1728; Malawi, 960; alternate hosts and vectors of, 960; effect of, on flowering, 959; on yield, 1728; transmission of, by vectors, 704; var. react. to, 704.
— — — on *Stylosanthes*, 960.
—, *Sclerotium rolfsii* on, in Colombia, 1939; U.S.A., 1731a; control, 429, 1731a.
— seed and seedling rot in Colombia, 1939.
—, *Sphaceloma arachidis* on, var. react. to,707.
— stunt virus on bean, 1350.
— — — on groundnut in Senegal, 1462; U.S.A., 705, 1350; control, 3282; effect of, on quality and yield, 705; symptomless host of, 3282; transmission of, by seed, 958, 3282.
— — — on tobacco, 3305e.
—, *Trichoderma* on, in U.S.A., 3644.
— veinbanding virus on groundnut in S. Africa, hosts of, and transmission of, by sap and vectors, 706.
—, *Verticillium dahliae* on, in Israel, 3286.
— virus diseases in S. Africa, 1727, 2925.
Guava (*Psidium guajava*), *Fusarium solani* on, in India, 3168, 3514; effect of age on susceptibility to, 3168; entry and severity of, 3514.
—, *Gloeosporium psidii* on, factors affecting, 2784.
—, *Macrophomina phaseoli* on, in India, 3168, 3514; entry of, 3514; factors affecting, 3168.
Guignardia citricarpa on citrus, *2a, 1125, 1126.
— — on fruit, 2032k.
— — on orange, 1127.
Gymnoconia peckiana, non-inhibition of germination of, by extracts from, 31.
Gymnospermae, fungi on, in Estonia, hosts, incidence and morphology of, 2079.
Gymnosporangium on, in U.S.A., key to and review of, 356.
— *clavipes*, non-inhibition of germination of, by extracts from, 31.
— *fuscum* on *Juniperus* and pear, 1920.
— *juniperi-virginianae* on apple, 2203.
— — on *Juniperus virginiana*, 1581.

Halticus tibialis transmitting sweet potato 'little leaf', 879.
Hand spraying versus aerial spraying, 1279.
Haplosphaeria deformans on raspberry, 1209, 3301b.
Haplosporella hesperidica on lime, 819.
Heat treatment against apple viruses, 2191; clover phyllody virus, 3665a; pear viruses, 2191; plant viruses, 1062; potato virus X, 401g; *Prunus* necrotic ringspot virus on rose, 401b; *Puccinia horiana* on *Chrysanthemum morifolium*, 1155; rose yellow mosaic virus on rose, 401b; strawberry crinkle virus on strawberry, 265; sugarcane white leaf disease, 3555; tomato aspermy virus on *Chrysanthemum cinerariifolium*, 390k; *Verticillium malthousei* on mushroom, 1374m.
— — as seed treatment for barley, 3091; for soybean, 2920.
— — ineffective against potato virus S, 401g.
Hebeloma mesophaeum on pine, forming mycorrhiza, 425.
Hedysarum coronarium, *Verticillium dahliae* on, biotin requirements of, 1009.

Heliantheae, *Puccinia* on, autoecious species of, 1791.
Helianthus annuus, see Sunflower.
**Helicobasidium compactum* on *Crotalaria anagyroides* and *Priotropis*, 3203.
*— *purpureum* on *Pseudotsuga menziesii*, 2586a.
Helicotylenchus associated with cherry rasp leaf disease, 3502.
Helix aspersa, inhibitor of tobacco mosaic virus from, 1275.
Helminthosporium in Germany (E.), 2743.
—, trace element studies on, 2063.
— *allii* on garlic, 1377j.
— *anomalum*, effect of makrolin on, 2983; of S-3 on, 2982.
— *atypicum* on wheat, 2457.
— —, pectic enzyme production and morphogenesis in, 3355.
— *australiense* on *Pennisetum typhoides*, 1862.
— *catenarium*, interaction of near-UV light and temp. on sporulation of, 1017.
— *crotalariae*, *H. tetramera* on *Crotalaria juncea* distinct from, 2731.
— *cynodontis* on *Cynodon dactylon*, 2186.
— *dictyoides*, see *Drechslera dictyoides*.
— *euphorbiae* as test fungus, 3691.
— *giganteum*, see *Drechslera gigantea*.
— *halodes*, see *Drechslera halodes*.
— *helianthi* on sunflower, 1222.
— *heveae* on *Hevea* rubber, 880c, 1256.
— *nodulosum* on *Eleusine coracana*, 163, 164, (?)1534.
— *papulosum* on pear, 2590f.
*— *pedicillatum* on maize, 2704.
— *proliferatum* on wheat, 2457.
— *rophaloides* on vegetables, 1995.
— *rostratum* on maize, **Sorghum halepense*, and *Sudan grass, 1113g.
— *sacchari*, see *Drechslera sacchari*.
— *setariae* on *Pennisetum typhoides*, 165.
— *siccans* on *Lolium multiflorum* and *L. perenne*, 2743.
— *sigmoideum* var. *irregulare* on rice, 1537b.
— *solani* on potato, 1251, 3030.
— *spiciferum* on *Cynodon dactylon*, 2186.
— *tetramera* on *Crotalaria juncea*, 2731.
— *vagans* on *Poa pratensis*, 235, 2743, 3479.
Hemp (*Cannabis sativa*), *Colletotrichum coccodes* on, in U.S.S.R., 1900.
—, *Corticium solani* on, in India, 2229.
—, *Pseudomonas cannabina* on, in U.S.S.R., 1900.
— streak virus on hemp in U.S.S.R., 1900.
Henbane (*Hyoscyamus niger*) mosaic virus, Colombian *Datura* virus not serologically identical with, 2647.
— — —, strs. of, 2584d.
Hendersonia, inhibition of fungi on *Acer saccharum* by, 649.
Heptachlor in combination as seed treatment for wheat, 1491.
Heracleum sphondylium, microfungi on, ecology of, 2970a, b.
— — ssp. *australe* virus in Czechoslovakia, *H. s.* ssp. *sibiricum* virus in Finland identical with or related to, 3056.
Herbicides, distribution and residues of, 3330.
—, effect of, on plant growth, 3666h; on soil fungi, 393e.
Hericium abietis on *Abies grandis*, 2858.
Herpotrichia nigra on Coniferae, 663.
Hesperis matronalis, cauliflower mosaic virus on, 2308.
Heterodera gottingiana associated with *Fusarium oxysporum* on lupin, 694c; *F. oxysporum* on pea, 694a, c; symptoms of, 694a.
— *rostochiensis*, interrelationship of tomato grey sterile fungus with, 2842.
— —, non-infection of cysts of, by fungi, 2357g.
Heterosporium allii f.sp. *allii-sativi* on garlic, 451.
— *phlei* on *Phleum pratense*, 2743.
Hexachlorobenzol as soil disinfectant, 2357b.
Hexachlorophene in combination against bacterial spotting of mushroom, 3662.
Hexathane against *Phytophthora infestans* on potato, 2240.
Hibiscus, *Aecidium garkeanum* on and 'purple disease' of, in C. African Rep., 3456.
— *cannabinus*, *Aspergillus* in rhizosphere of, distribution of, 219.
— —, *Cladosporium herbarum* on, in U.S.A., introduced from abroad, 2437.
— —, *Colletotrichum hibisci* on, in C. African Repub., 3456.
— —, *Corticium solani* on, control and factors affecting, 2730.
— —, *Fusarium* (?)*roseum* on, in Iran, 1579.
— —, — *solani* and *Gibberella baccata* on, in U.A.R., *Meloidogyne javanica* associated with, 3457.
— —, *Phytophthora nicotianae* var. *parasitica* on, in C. African Repub., 3456.
— *esculentus*, *Alternaria tenuis* on, in U.S.A., introduced from abroad, 2437.
— —, *Fusarium solani* on, 1016.
*— *ficulneus*, *Cercospora malayensis* on, in India, 975.
— *manihot* mosaic virus on *Hibiscus manihot* in Papua and New Guinea, host range, symptoms, and transmission of, 2353.
— *mutabilis* and *H. rosa-sinensis*, *Microxyphiella hibiscifolia* on, in India, 3454.
Hippeastrum mosaic virus on *Amaryllis*, 540.
— streak in Papua and New Guinea, 400.
Hirsutella versicolor on *Idioceros*, 738.
Homobasidiomycetes, spore wall in, 1435.
Hop (*Humulus*) infectious sterility virus and hop leaf roll virus on hop in Poland, 277.
—, *Phytophthora* on, in U.S.A., 1636.
—, — *citricola* on, in England, identical with N.Z. isolate, 1635.
—, *Prunus* necrotic ring spot virus on, in England, 2355j.
—, *Pseudoperonospora humuli* on, biology of, 589; control, 1376h, 2228, 3524d; culture of, 3525; diurnal periodicity in, 3524a; effect of autumn spraying on, 2228; factors affecting, 590, 591, 3524a, b; sporulation of, 3524c; testing fungicides against, 1937.
—, *Sphaerotheca macularis* on, control, 1376h; diurnal periodicity in, 3524a.
—, *Verticillium alboatrum* on, in Germany, 1938; effect of phenolic compounds on, 2606; effect of, on yield, 1938; legislation against, 3174; survival of, 2355e.
*—, — *tricorpus* on, 2658.
Hordeum, *Puccinia graminis* on, spec. react. to, 2660.
— *bulbosum*, *Uromyces christensenii*, *U. hordeastri*, *U. mysticus*, and *U. reichertii* on, in Israel, 137.
— *murinum*, *Uromyces hordeastri* on, in Israel, 137.

rdeum] spontaneum, Uromyces viennot-ourginii on, in Israel, 137.
ulgare, see Barley.
nbeam (*Carpinus betulus*), *Poria albidofusca* n, in U.S.S.R., 927.
orse chestnut (*Aesculus hippocastanum*), *ollybia velutipes* and *Lentinus tigrinus* on, n Rumania, 3579.
rse-radish (*Armoracia rusticana*), *Albugo andida*, turnip mosaic virus and *Verticillium rmoraciae* on, var. react. to, 941.
virus diseases, control and transmission of, y sap, 1704.
osta, Fusarium versiforme on, in U.S.S.R., 732.
staquick against *Streptomyces scabies* on otato, 1377g; *Xanthomonas phaseoli* on ean, 1377h.
st-parasite interactions, 3666a; aromatic compounds in, 986i; cell biological aspects of, 33; genetic, 8; significance of nucleic acid metabolism in, 3661b.
t air treatment against sugarcane ratoon stunting virus, 1259a.
water treatment against *Ceratocystis fimbriata* on sweet potato, 2819; *Corynebacterium michiganense* on tomato, 2843; *Fusarium oxysporum* f.sp. *gladioli* on *Gladiolus*, 1907; *F. roseum* and *F. solani* on cantaloupe, 2582; *Monilochaetes infuscans* on sweet potato, 2819; *Nectria galligena* and *Pezicula malicorticis* on apple, 2205; sugarcane diseases, 3198c; sugarcane ratoon stunting virus, 1259a; *Trichoseptoria fructigena* on apple, 2205; *Xanthomonas albilineans* on sugarcane, 882d; *X. vesicatoria* on tomato, 2843.
— — as seed treatment, 2118.
— — — — — — for barley, 1377c; cereals, 3406; rice, 812; sesame, 593; wheat, 2128.
umulus, see Hop.
yacinth (*Hyacinthus*), *Penicillium corymbiferum* on, in Germany, 833.
, — *cyclopium*+*Pseudomonas marginalis* on, effect of, on, 1374o.
yalesthes obsoletus transmitting stolbur virus, 1451.
yalodendron roborus on oak, 329.
Hyalopsora aspidotus on *Abies grandis*, 2860,
yamine in combination against *Ceratocystis paradoxa* on sugarcane, 3198d.
ydrangea, Botrytis and *Oidium* on, in Netherlands, 3459g.
-ring spot virus on *Hydrangea* in Italy, purification of, 1158.
- *hortensis*, ?*Glomerella cingulata* on, in India, 3135.
Hydrogen peroxide, effect of, on tree seeds, 1980.
-hydroxy-3-methylanthraquinone, effect of, on *Trichoderma virgatum* and production of, by fungi on *Chamaecyparis nootkatensis*, 3592.
-hydroxyquinoline sulphate against *Fusarium oxysporum* f.sp. *gladioli* on *Gladiolus*, 1907.
Hymenochaete agglutinans on *Phoradendron flavescens*, 2851.
Hyoscyamus niger, see Henbane.
Hypera postica, Beauveria densa on, susceptibility to, 2596.
Hyphoderma tenue and *Hyphodontia alutaria* on timber, 932.
Hyphomycetes, taxonomy of, 1436, 2082.
Hypochlorite, effect of pretreatment with, on *Curvularia, Fusarium oxysporum* and *Gibberella fujikuroi* on sorghum, 2153.
Hypocrea pulvinata, effect of organic N: carbohydrate ratio on, 36.
— *rufa* on apple, 1603.
**Hypocyrta glabra, Myrothecium roridum* on, in Germany, 227.
Hypodermataceae, revision of, 47.
Hypodermella ampla on pine, 643c.
Hypomyces solani on poplar, 332.
— — f.sp. *cucurbitae*, perithecium formation by, 437a, b.
Hypoxanthine, effect of, on spore germination in *Phytophthora infestans*, 2549.
Hypoxylon pruinatum on aspen, see Aspen.
— *rubiginosum* on *Hevea* rubber, 2655.
— *serpens* on tea, 621b, 2655.

Iconographia Mycologia Vol. XX, 1031; XXI, 3371.
Idioceros, Hirsutella versicolor on, in India, 738.
Idyia fijiensis transmitting *Axonopus* chlorotic streak virus, 845.
Imidazole, fungitoxicity of derivatives of, 2383.
Imidazol-1-ylphosphinamidothionates, fungicidal activity of, 3332.
Impatiens parviflora virus diseases in Czechoslovakia, 1374s.
Inazuma dorsalis not transmitting rice transitory yellowing virus, 3102.
— — transmitting rice yellow orange leaf virus, 2155.
Indian Science Congress Association, volume on Golden Jubilee of, 3304.
Index publs. 1945–1966, Plant Prod. Div., F.A.O., 1748.
Indolelacetic acid, production of, from tryptophan by *Phytophthora*, 2608.
Infra red radiation as seed treatment for barley and wheat, 1479.
Inocybe associated with ectotrophic mycorrhiza of *Afzelia bella* in Nigeria, 2050.
Ipomoea, Pyrenochaeta terrestris on, 2119.
— *batatas*, see Sweet potato.
Insects, *Aspergillus* on, mode of action of, 737f.
—, biological and chemical control of, 737c.
— in relation to plant disease, 2nd edition of book on, 1386.
—, *Paecilomyces farinosus* on, factors affecting coremium production and growth of, 1394.
— (?)transmitting *Ceratocystis fagacearum*, 3223; potato virus diseases, 404; viruses, migration of, 395d.
Iris, Botrytis tulipae and *Didymella macrospora* on, in U.S.S.R., 2366.
— mild mosaic virus on *Iris*, 838.
— mosaic virus, hosts of, 2183; study on, 390m; transmission of, 2183.
—, *Penicillium corymbiferum* on, in Germany, 833; penetration by wounds, 2500.
—, *Puccinia iridis* on, in U.S.S.R., 2366.
—, *Sclerotinia convoluta* on, effect of soil fungi and temp. on infection, 839.
—, — *draytonii* on, in U.S.S.R., 2366.
— severe mosaic virus on *Iris*, symptomless occurrence of, 838.
—, tulip breaking virus on, in U.S.S.R., 2366.
Iron deficiency associated with citrus decline, 199; pine needle chlorosis, 2298.
— — in apple, 567.
—, effect of, on Barakovo black spot on tobacco, 1673; on growth of *Helminthosporium*, 2063.

[Iron] sulphate against *Elsinoe ampelina* on grapevine, 1634; grapevine canker, 2540; pine needle chlorosis, 2298; *Rhacodiella vitis* on grapevine, 1934; rose diseases, 1164.
Isariopsis griseola, effect of bean exudates on growth of, 755.
— — on bean, see Bean.
*— — on cowpea, 2007.
— — on *Phaseolus mungo*, 700.
Isatis tinctoria, *Colletotrichum higginsianum* on, in U.S.A., introduced from abroad, 2437.
2-isopropyl-4-dimethylamino-5-methylphenyl-1-piperidine carboxylate, see Amo-1618.
Isthmiella crepidiformis on spruce, 2562e.
Itersonilia pastinacae on parsnip, 1063b.
— *perplexans* on *Chrysanthemum*, 390e.
— — on sunflower, 1222.

JF 808 as seed treatment for pine, 3595b.
Johnson grass, see *Sorghum halepense*.
Juglans, see Walnut.
Juniperus, *Gymnosporangium fuscum* on, 1920.
—, *Rhynchosphaeria cupressi* on, in Jamaica, 2958b.
— *chinensis*, *Kabatina juniperi* on, effect of, on, 1317.
— *deppeana*, *Uredo apacheca* on, in U.S.A., description of, 356.
— *horizontalis*, *Kabatina juniperi* on, effect of, on, 1317.
— *monosperma*, effect of H_2O_2 on seeds of, 1980.
— *sabina*, *Kabatina juniperi* on, effect of, on, 1317.
— *scopulorum*, *Cercospora sequoiae* on, in U.S.A., 2862; control, 2271d.
— *squamata meyeri*, *Kabatina juniperi* on, effect of, on, 1317.
— *virginiana*, *Cercospora sequoiae* on, in U.S.A., 2862; control, 2271d.
— —, *Gymnosporangium juniperi-virginianae* on, factors affecting growth of, 1581.
Jute (*Corchorus capsularis* and *C. olitorius*), *Moniliopsis aderholdii* on, form of *Corticium solani*, 455.

Kabatiella caulivora on clover, 3139.
Kabatina juniperi, hosts of, 1317.
Kalanchoe fedtschenkoi, *Phytophthora nicotianae* var. *parasitica* on, cultural and pathogenic variation in, 2657.
Kale (*Brassica oleracea* var. *acephala*), *Plasmodiophora brassicae* on, in Canada, testing for resistance to, 937.
Karathane against *Alternaria citri* on orange, 195; *Erysiphe cichoracearum* on cucumber, 387, 972; *Microsphaera alphitoides* on oak, 910; *Podosphaera leucotricha*, 1918; powdery mildews, 20; *Sphaerotheca fuliginea* on cucumber, 387, 2347.
**Karstenula guttulata* on apple, 86.
Kasugamycin, inhibition of sporulation of *Pyricularia oryzae* by, 515.
Kasumin W.P. against *Pyricularia oryzae* on rice, 1120.
KD1 against *Nectria galligena* on apple, 3302a.
Kerosene, *Cladosporium resinae* on, 3345.
Khuskia oryzae on maize, 1525a, *b, 2476.
— — on rice, 181.
*— — on wheat, 1846.
Kinetin, effect of, on susceptibility of *Nicotiana glutinosa* to tobacco mosaic virus, 1050.
Kirti copper against *Alternaria citri* on oran 195.
Kochia scoparia, *Cercospora beticola* on, 22
Kocide 101 in combination against *Cercosp coffeicola* on coffee, 2960d.
Kojic acid, effect of, on groundnut, 2015.
Kola (*Cola acuminata*), *Botryodiplodia th bromae* and *Fomes noxius* on, in Nige 2438c.
Kumquat (*Citrus* hybrid), citrus tristeza vi on, in Fiji, 2034a.
Kurticopper W.P. 50 against *Pythium aphl dermatum* on tobacco, 3210.

Labiatae, Erysiphaceae on, in U.S.S.R., 1
Lablab niger, *Ascochyta phaseolorum* on, N.S.W., 2032b.
— —, *Cercospora ?dolichi* on stored, in I 2918.
— —, — *?canescens* on, in N.S.W., 2032b.
— —, *Fusarium solani* on, 1016.
— —, sandalwood spike virus disease transmission of, by sap, 1312.
— — storage disorders, 2918.
Laboulbenia geminata on *Isoptera*, 15.
Laccaria amethystina virus disease, 3057.
— *laccata* on pine, forming mycorrhiza, 42
— — virus disease, 3057.
Lactarius on chestnut, forming mycorrhiza, 4
Lactuca sativa, see Lettuce.
Lagenaria vulgaris var. *hispida*, *Fusarium o sporum* f.sp. *lagenariae* on, 1366.
Lannate against beet yellows virus on beet, 2
Lanolin as wound dressing, 3496.
Lanstan, analytical methods for, 3326.
— against *Urocystis cepulae* on onion, 3649 soil disinfectant, 3617, 3436.
Lantana horrida virus, electron microscopy 2736.
Laodelphax striatellus transmitting rice str virus, 2706.
Larch (*Larix*), *Boletus elegans* on, form mycorrhiza, 424.
—, fungi on, effect of, on, 3248.
—, *Fusarium* on, factors affecting, 3593.
—, — *oxysporum* on cones of, 2300.
— mycorrhiza in U.S.S.R., 1768.
—, *Trichoscyphella willkommii* on, age of tr in relation to, 2301.
Larix, see Larch.
Larvacide, see Chloropicrin.
Latin-Russian-Byelorussian botanic dictiona 2369.
Lathyrus cicera and *L. latifolius*, *Erysiphe po goni* on, 2003.
— *odoratus*, see Sweet pea.
Laurus nobilis, *Ascochyta laurina*, *Colletotrich nobile*, *Macrophoma georgica*, *Oidium pass nii*, *Pestalotia laurina*, and *Phyllosticta l* on, in U.S.S.R., 2501.
*— —, *Phytophthora cinnamomi* on, in U.S. 1586.
— —, *Sclerotium rolfsii*, *Venturia nobilis*, *Verticillium alboatrum* on, in U.S.S.R., 2
Lead, toxicity of, to *Aspergillus niger*, 3695
— arsenate in combination against *Fusicoc amygdali* on peach, 1202.
Leafhoppers transmitting sugarcane white l disease, 3555.
Leek (*Allium porrum*), *Alternaria porri* on, Ivory Coast, 85.
—, *Sclerotium cepivorum* on, effect of vola

roducts and extracts from, on germination f sclerotia of, 2932.
islation against plant diseases in Canada, 766; Denmark, 2684; Germany, 1409, 704; Greece and Iraq, 999; New Caledonia nd Dependencies, 747b; Pakistan, 747a; pain and Sweden, 2989; U.S.A., 999, 2048, 705.
guminosae, *Ascochyta* on, in U.S.S.R., iology of, 2433.
Astragalus dwarf virus on, 1712.
bean viruses on, in Lithuania, 2317, 2318.
— yellow mosaic virus on, in Bulgaria, 1460.
cucumber mosaic virus str. on, differentiation of, 75a.
diseases, 393a.
, Erysiphaceae on, in U.S.S.R., 1037.
, *Erysiphe pisi* and *E. trifolii* on, C.M.I. descriptions of, 1035b.
, *Fusarium* on, in Lithuania, 2319.
, — *poae* on, effect of, on 2321.
, groundnut veinbanding virus on, 706.
leaf diseases, effect of precipitation on, 4e.
, *Leveillula taurica* on, C.M.I. description of, 3731b.
, passion fruit woodiness virus can infect, 271.
, pea viruses on, in Lithuania, 2317, 2318.
, stimulatory effect of, on growth of *Fusarium solani*, 2073.
, toxicity of *Streptomyces rimosus* to, 978d.
, *Uromyces* on, in U.S.S.R., 237.
virus diseases in Lithuania, 2317, 2318; U.S.S.R., 693; control, 64.
emon (*Citrus limonia*), *Candida krusei* on, differentiation of, from *Geotrichum candidum*, 2720.
, citrus crinkly leaf virus on, reinfection of, by subcortical injections, 2165b.
, — exocortis virus on, in Japan, colour test for, 2165.
, — 'impietratura' virus on, in Cyprus, 1123a.
, — infectious variegation virus on, reinfection of, by sub-cortical injections, 2165b; transmission of, mechanically, 2715.
, — stubborn disease virus on, symptoms of, 187.
, — tristeza virus on, in India, 522; U.S.A., 1552.
, *Penicillium* on, control, 197.
, *Sclerotinia sclerotiorum* on, in Italy, 525.
, *Xanthomonas citri* on, in Argentina, 1556.
ens esculenta, see Lentil.
entil (*Lens esculenta*), diseases of, in Iran, 3262.
—, ?*Erysiphe polygoni* on, in India, symptoms of, 2923.
, *Fusarium orthoceras* f.sp. *lentis* on, production of toxic metabolites by, 435.
entinus edodes, *Pachybasium* and *Trichoderma viride* on, 729.
lepideus, ecology of, 930.
— on timber, 682, 1332, 3251.
— *tigrinus* on horse chestnut, 3579.
enzites betulina, inhibition of *Trametes sanguinea* by, 2304.
saepiaria and *L. subferruginea* on timber, 681.
trabea on timber, 682, 1992, 3251.
epiota, inhibition of tobacco mosaic virus by extracts from, 3204.
Leptodiscus terrestris on *Lotus corniculatus*, 2518.
Leptosphaeria coniothyrium on rose, 549.
— *herpotrichoides* on wheat, 2664.
— *maculans* on cabbage, 1996, 3621.
— — on Cruciferae, 3621.
— *michotii* on sugarcane, 1035a.
— *nodorum* on cereals, 1077, 1817.
— — on wheat, see Wheat.
— *sacchari* on sugarcane, 1035a, 2826.
— *salvinii* on rice, see Rice.
*— *taiwanensis* on sugarcane, 302.
— *tritici* on wheat, 1496, 2130, 2664.
— — — —, resemblance of 'brown neck' symptoms to, 3087.
**Leptosphaerulina arachidicola* on groundnut, 3642.
— *australis*, ascocarp formation and sporulation of, 1439.
— *briosiana*, effect of temp. on ejection of ascospores of, 3012.
— *crassiasca* on groundnut, 2928.
— *trifolii*, C.M.I. description of, 1035a.
— — on clover, 240.
— —, spotting on forage legumes resembling, 238.
Lettuce (*Lactuca sativa*), *Arabis* mosaic virus on, transmission of, by seed, 712.
— big vein virus, unusual vectors of, 9b.
—, *Botrytis cinerea* on, in England, 2939; control, 713, 1375u, 2343, 3697; epidemiology of, 713; popular review of, 2939.
—, *Bremia lactucae* on, in England, 3299b; **Kenya*, 2a; control, 1375s; physiologic races of, 3299b.
—, dyrene residues in, 394a.
—, *Erwinia carotovora* can infect, 3315.
—, *Fusarium oxysporum* f.sp. *lactucae* on, description and symptoms of, 2580.
— leaf-tip burn, symptoms of, 1361.
—, *Marssonina panattoniana* on, in Austria, 968.
—, methods for selection of healthy seed of, 1745k.
— mosaic virus on lettuce, effect of Al foil between rows on, 1360; of MCPA on, 2938; factors affecting transmission of, 395c, 3390; lyophilization of, 2104; transmission of, by seed, 712; test for, 383; technique for identifying, 384; var. react. to, 1745l.
*—, *Mycosphaerella ligulicola* on, 1154; effect of leaf washings on infection by, 1905.
—, *Olpidium brassicae* on, formation of sporangia in, 3740; isolate differences in, 365; ultrastructure of, 3740.
—, *Phoma* on, hosts of, 2357d.
—, *Sclerotinia* on, control, 967.
—, — *minor* on, control, 2343.
*—, — *sclerotiorum* on, in Rhodesia, 2359a; control, 2343.
— tipburn, laticifer rupture and, 1735; symptoms and types of, 391d.
— virus diseases, epidemiology, symptoms, and transmission of, 2022.
*—, *Xanthomonas vitians* on, in Rhodesia, 3a.
Leucopaxillus amarus, growth and spore germination of, 22.
Leutosan against *Ustilago avenae* on oats, 1511.
Leveillula in U.S.S.R., 1037.
— *taurica*, conidia and conidial germination in, 30.
— —, method for predicting, 1073.
— — on Leguminosae, 3731b.

Lichens, biology of, book on, 406.
Light, effect of, on *Ascochyta chrysanthemi* on chrysanthemum, *A. pisi* and *Mycosphaerella pinodes* on pea, and *Phoma herbarum* var. *medicaginis* on lucerne, 24; on sporulation of *Peronospora tabacina*, 628.
Lignin, degradation of, by soil fungi, 1782.
Ligustrum, see Privet.
Lilac (*Syringa vulgaris*), *Cylindrocladium floridanum* and *C. scoparium* on, in U.S.A., 3461.
— leaf roll, mosaic, and ring spot viruses on lilac, characteristics and world distribution of, 1587.
— white mosaic virus on lilac in Germany, severity of, 1587.
— witches' broom virus on lilac, characteristics and world distribution of, 1587.
Lily (*Lilium*), *Hippeastrum* mosaic virus on, 540.
Lima bean, see *Phaseolus lunatus*.
Limacinia citri in Chile, factors affecting development of, 82.
Lime (*Citrus aurantifolia*), citrus greening virus on, in India, symptoms and transmission of, by vectors, 2167.
—, — stubborn disease virus on, symptoms of, 187.
—, — tristeza virus on, in Cyprus, 3113; Fiji, 2034a; India, 522.
— endoxerosis, control, 1131.
—, *Fusarium solani* f.sp. *aurantifoliae* on, 194.
—, *Haplosporella hesperidica* on, in India, symptoms of, 819.
—, *Phytophthora citrophthora* on, control, 1885.
—, *Sphaeropsis tumefaciens* on, in Jamaica, 2958a.
— stylar-end rot, control, 1131.
— tree, see *Tilia*.
—, effect of, on potato tuber diseases, 1376d.
—, slaked, against *Plasmodiophora brassicae* on cabbage, 2307.
— -sulphur injury to apple, 250.
Limnanthes douglassii, cucumber mosaic virus on, transmission of, by vectors, 3054.
Limonium sinuatum, *Cercospora insulana* on, biology, morphology and symptoms of, 3470.
Lindane against timber blue stain, 3219.
— in combination against timber blue stain, 3219, 3609.
Linochora ligniaria on fruit, 1598.
Linseed (*Linum usitatissimum*), *Fusarium oxysporum* f.sp. *lini*, *Melampsora lini*, and *Mycosphaerella linorum* on, in Argentina, 1578.
Linum usitatissimum, see Flax, Linseed.
Lipaphis erysimi, *Entomophthora coronata* on, factors affecting, 1757.
Liquidambar styraciflua, *Botryosphaeria ribis* on, in U.S.A., 2277.
— — mycorrhiza, effect of methyl bromide on, 2849.
— —, *Pythium sylvaticum* on, in U.S.A., 908.
Liriodendron tulipifera, *Armillarina mellea* on, associated with butt rot, 1976.
— —, *Cylindrocladium scoparium* on, resemblance of *C.* on walnut to, 3305g.
— —, soil fungi in litter of, factors affecting, 1020.
Liro-maneb and lirotan against *Coniella diplodiella* on grapevine, 1935.
Litchi chinensis, *Botryodiplodia theobromae*, *Glomerella cingulata*, and *Pestalotia pauc* on, control, 864.
Lirula nervata on *Abies balsamea*, 2562a.
Lobelia, potato virus Y and tobacco etch can infect, 1455.
—, *Xanthomonas* on, 3299k.
**Lochnera pusilla*, *Xanthomonas malvace* on, 218.
Locusts, *Metarrhizium anisopliae* on, stud 2977.
Loganberry (*Rubus ursinus* var. *loganobac*
Didymella applanata and *Elsinoe venet* control, 3161.
— virus, relationships and transmissio 2355i.
Lolium mosaic virus on *Lolium*, effect of N 2584f.
— mottle virus on *Lolium* in Britain, 3474
— *multiflorum*, *Ascochyta desmazieri* o Brazil, 1168a.
— —, barley yellow dwarf virus on, in D mark, 730b.
— —, *Helminthosporium* and *H. siccans* o Germany (E.), 2743.
— —, *Puccinia graminis* on, in Brazil, 1168
*— —, *Pythium myriotylum* on, suscepti to, 2434.
— —, *Septoria tritici* var. *lolicola* on, in Br 1168a.
— *perenne*, barley yellow dwarf virus on, 33
— —, *Claviceps purpurea* on, 1104.
— —, *Gloeotinia temulenta* on, control, 250
— —, *Helminthosporium* and *H. siccans* o Germany (E.), 2743.
Lonacol against *Peronospora destructor* onion, 709.
Longidorus elongatus transmitting *Arabis* mo virus, 69; raspberry ring spot virus, 1 2218; tomato black ring virus, 1059.
— *macrosoma* transmitting carnation ring s virus, 221.
Lophiostomaceae on fruit, 1598.
**Lophodermium darkeri* on spruce, 643b.
— *macrosporum* on spruce, 357.
— *nitens* on pine, 2864.
— *picea* on spruce, 357.
— *pinastri*, *Davisomycella fragilis* on previously confused with, 347.
— —, effect of pine needle extracts on gro of, 9780.
— — on forest trees, 919a.
— — on pine, see Pine.
**Lophophacidium hyperboreum* on spru 2562e.
Loquat (*Eriobotrya japonica*), *Sclerotium ro* on, in India, symptoms of, 3169.
—, *Spilocaea eriobotryae* on, in U.S.S. 268.
Lotus conjugatus and *L. corniculatus*, immu from bean yellow mosaic virus, 1460.
— *corniculatus* crown and root rot, *My leptodiscus sphaericus* and *M. terres* associated with, 1597.
— —, *Leptodiscus terrestris* on, effect of dif ent glasshouse containers on, 2518.
— —, *Ramularia deusta* on, in Brazil, 1168b
— — spotting, resemblance of, to *Le sphaerulina trifolii*, 238.
— *edulis*, potato virus Y can infect, 1455.
Lucerne (*Medicago sativa*), *Alternaria tenuis* seed of, in Poland and Yugoslavia, 1176
—, bean yellow mosaic virus on, in Bulga resistance to, 1460.

ucerne], *Cercospora medicaginis* on, sources of inoculum for, 3143.
-, *Corynebacterium insidiosum* on, in *Australia, survey of, 3144; Victoria, 2032g; non-occurrence of, in N.S.W., 2032g.
- diseases, bulletin on and symptoms of, 3485.
-, effect of, on survival of *Typhula idahoensis* sclerotia in soil, 3409.
-, *Fusarium oxysporum* on seed of, 1176.
- mosaic virus in Jordan, Lebanon, and Syria, 1045.
— — —, effect of two components on infectivity of, 1913.
— — —, lyophilization of, 2104.
— — — on bean, 3393.
— — — on celery, 3611.
— — — on clover, 239, 2514.
— — — on eggplant, 2352.
— — — on lucerne in Czechoslovakia, incidence of, 2514.
— — — on *Malva parviflora*, 3394.
— — +bean yellow mosaic viruses on bean and pea, 775.
— — —, see also Alfalfa mosaic virus.
—, *Phoma herbarum* var. *medicaginis* on, in Rumania, 1914; effect of light and UV light on, 24.
—, — — — — on seed of, in Poland and Yugoslavia, 1176.
*—, *Phytophthora megasperma* on, in U.S.A., 243.
—, *Pleospora herbarum* on, in Yugoslavia, 1594.
—, *Pseudopeziza medicaginis* on, epidemiology of, 557; sexual development in, 1440.
— snow mould in Canada, 1593.
— spotting, effect of light and temp. on and resemblance of, to *Leptosphaerulina trifolii*, 238.
—, *Verticillium* on, susceptibility to, 478.
—, — *alboatrum* on, in Denmark, 730b; breeding against, 244; formation of endospores in, 2625; genetics of, 556.
— meal against *Phytophthora cinnamomi* on avocado pear, 863.
**Lucilia cuprina*, *Entomophthora* on, in India, 413.
Luffa acutangula, tobacco ring spot virus and watermelon mosaic virus on, similarity of symptoms, 2645.
Lupin (*Lupinus*), alfalfa mosaic virus on, in Great Britain, strs. and transmission of, 2503.
—, bean yellow mosaic virus on, in Lithuania, 2318; detection of, 245; virulence of, 2318, 3483.
—, cucumber mosaic virus on, in Great Britain, 2503.
—, *Cylindrocladium scoparium* on, 1930.
—, *Erwinia carotovora* on, susceptibility to, 846.
—, *Erysiphe polygoni* on, 2003.
—, *Fusarium* on, in Lithuania, 2190.
—, — *acuminatum*, *F. avenaceum* var. *herbarum*, and *F. javanicum* on, in Lithuania, 2319.
—, — *oxysporum* on, in Lithuania, 2319; *Heterodera gottingiana* associated with, 694c.
—, — — f.sp. *lupini* on, in Hungary, effect of *Rhizobium lupini* in soil on symptoms of, 1743c.
—, — *solani* var. *coeruleum* on, in Lithuania, 2319.
—, *Glomerella cingulata* on, effect of temp. on growth of, 1596.
[Lupin] mottle virus on lupin in Great Britain, transmission of, 2503.
—, pea mosaic virus stem browning str. can infect, 2904.
—, *Pseudomonas lupini* and *P. xanthochlora* on, susceptibility to, 846.
—, *Uromyces lupinicola* on, in U.S.S.R., 2732.
— virus disease in Hungary, resemblance of, to pea mosaic virus, 1743b.
— — diseases in Great Britain, 2503.
—, watermelon mosaic virus on, aggregated particles of, 3653.
Lychnis mosaic virus on *Lychnis*, differentiation of, from tobacco mosaic virus, 3471.
Lycopersicon, *Corynebacterium michiganense* on, react. to, 1972.
— *esculentum*, see Tomato.
— *peruvianum*, tobacco mosaic virus on, 3567.
— *pimpinellifolium*, *Corynebacterium michiganense* on, evaluation of resistance to, 2267.
Lygus campestris transmitting fungi, 983.
— *rugulipennis* transmitting turnip mosaic virus, 983.

M45 against *Gibberella fujikuroi* on *Dracaena* and *Pleomela*, 1584; *Peronospora tabacina*, 888.
— in combination against *Xanthomonas citri* on citrus, 1130.
M2452 against *Sphaerotheca pannosa* on rose, 3459h.
—, toxicity of, to rose, 3459h.
**Macadamia*, *Armillaria mellea* on, in Rhodesia, 2588a.
Macromycetes in U.S.S.R., economic importance and review of, 3035.
Macrophoma camarana on rose, 549.
— *georgica* on *Laurus nobilis*, 2501.
— *fraxini* on ash, 325.
— *sabinea* on timber, 2285.
Macrophomina phaseoli associated with *Neocosmospora vasinfecta* on cowpea, 83.
— —, effect of growth regulators, trace elements, and vitamins on growth of, 2061.
*— —, hosts of, 2436.
— —, inhibition of, by *Trichoderma viride*, 2613.
— —, interactions of, with soil fungi, 2613.
— — on *Abies grandis*, 355.
— — on bean, 1381k, 1747a.
— — on *Carthamus*, 1939.
— — on *Colocasia esculenta*, 2953.
— — on cotton, 1573.
— — on groundnut, see Groundnut.
— — on guava, 3168, 3514.
— — on maize, 1527.
*— — on orange, 196.
— — on pine, 355.
*— — on sorghum, 2030.
— — on soybean, 1939.
— — on sunflower, 82, 978j, 1222.
Macropsis trimaculata transmitting peach yellows virus, 852.
Macrosiphum avenae transmitting barley yellow dwarf virus, 394e, 1078, 3090.
— *euphorbiae* transmitting pea enation mosaic virus, 2577.
— *miscanthi* transmitting barley yellow dwarf virus, 2659.
— *pisi*, *Entomophthora aphidis* and *E. thaxteriana* on, 3683.

Macrosteles fascifrons transmitting aster yellows virus, 473; recovery from, 1797.
— *laevis* transmitting *Poa annua* virus, 2510.
**Madhuca indica, Cylindrocladium scoparium* on, hosts and symptoms of, 1930.
Magnesium deficiency in oil palm, 596.
—, effect of, on spore germination of *Glomerella cingulata*, 433.
— excess in pea, causing Ca deficiency, 1g.
— nutrition of *Corynebacterium sepedonicum*, 4b.
— sulphate as source of nutrition for *Schizophyllum commune*, 930.
Maize (*Zea mays*), *Aspergillus flavus* on, 3436; factors affecting, 1467, 2476.
—, — *ochraceus* on, effect of, on *Trichometasphaeria turcica* on maize, 1524.
—, *Bromus* mosaic virus on, 1167.
—, *Cephalosporium* on, factors affecting, 3095b; transmission of, by seed, 3095a.
—, — *acremonium* on, effect of mercuric chloride on growth of, 2476.
—, *Chaetomium globosum* on, effect of, on *Trichometasphaeria turcica* on maize, 1524.
—, *Claviceps gigantea* on, in Mexico, 3306.
—, *Cochliobolus carbonum* on, in Kenya, 2358d; W. Cameroon, 3094; effect of sterols on sexual differentiation in, 510; isolation of toxins from, 803; relationship between β-glucosides and infection by, 1110.
—, — *heterostrophus* on, in Ecuador, 2698.
—, — *sativus* in rhizosphere of, effect of antagonistic micro-organisms on, 507.
—, *Colletotrichum graminicola* on, appressoria in, 3744; not infecting, 3099.
—, *Diplodia* on, in Ecuador, 2698; Rhodesia, 2588b.
*—, — *macrospora* on, in India, 156.
—, — *maydis* on, apparatus for inoculating, 3435; effect of mercuric chloride on growth of, 2476.
— diseases in India, 1113d; S. Africa, 802; U.S.A., 1105; W. Cameroon, 3094; biochemical factors involved in resistance to, 1374b; control, 802, 1105; var. react. to, 802.
— dwarf mosaic virus on maize in U.S.A., 2032e, 2144, 2695, 2696; effect of, on yield, 3093; on chloroplasts, photosynthesis, and respiration, 2145; factors affecting, 2695; hosts of, 2144, 2695; introduction of resistance to, 2697; strs. of, 2696; technique for inoculating, 1513a, b; transmission of, by vectors, 147; var. react. to, 3093.
— — — — on sorghum and *S. halepense*, 2145b.
— — — — on sugarcane, 300.
— — — — strs. A and B on maize in U.S.A., 3431; genetics of resistance to, 2590c.
— — virus, conference papers on, 3306.
—, *Epicoccum* on, effect of, on *Trichometasphaeria turcica* on maize, 1524.
—, *Erwinia* on, non-production of urease by, 411.
—, — *stewartii* on, review of, 1529; revised edition of U.S.D.A. Fmrs' Bull. on, 3437.
—, *Fusarium* on, in Austria, 2030; Ecuador, 2698; Hungary, 1743n; control, 3096; relationship between incidence of and reduced germination in, 1112; technique for inoculating, 1526.
—, — *avenaceum* on, in Germany, 1111, 1861; effect of crop rotation on, 1861.
—, — *culmorum* on, in Germany, 1111, 1861; effect of crop rotation on, 1861; relationsh between β-glucosides and infection by, 111
[Maize, *Fusarium*] *oxysporum* on, in German transmission of, by seed, 1111.
—, — *poae* on, in Germany, 1111; factc affecting, 1112.
—, — *roseum* on, in France, damage caused b 99.
—, — *scirpi* on, in Germany, 1111.
—, *Gibberella fujikuroi* on, in C. Ameri 2960b; Germany, 1111; Rumania, 1377 U.A.R., 1525b; effect of mercuric chlori on, 2476; factors affecting, 2960b, 3095 relationship between cellulase activity an 157; β-glucosides and, 1110; study on, 111 symptoms of, 1525b, 2960b; transmission o by seed, 1111, 3095a.
—, — *zeae* on, 3436; in Rumania, 1377 U.A.R., 1525a, *b; effect of merc chloride on, 2476; factors affecting, 1525 relationship between β-glucosides an 1110.
—, *Gonatobotrys zeae* on, 3305b.
— growth, effect of antibiotics on, 2045 gnotobiotic conditions on, 88.
—, *Helminthosporium* on, 3437.
*—, — *pedicillatum* on, in India, 2704.
—, — *rostratum* on, in India, 1113g.
— kernel red streak disease, *Aceria tulipa* causing, 151.
—, *Khuskia oryzae* on, in U.A.R., 1525a, * effect of mercuric chloride on, 2476; facto affecting, 1525a.
—, *Macrophomina phaseoli* on, in U.S.S.R 1527.
—, microflora of roots of, in relation to ro rot resistance, 161.
— mosaic virus on maize in India, 14 Yugoslavia, 149; control, 149; effect of, c growth and yield, 1514; electron microscop of, 504; str. of sugarcane mosaic virus, 14 transmission of, by vectors, 148, 149, 110 var. react. to, 1514.
— — — on sorghum, 1113f.
— — — on *Sorghum halepense*, 149.
— necrotic leaf spot, benzimidazole ineffecti against, 805.
*—, *Nigrospora sphaerica* on, in Kenya, 2358
— pellucid spot virus on maize in W. Cameroo 3094.
—, *Penicillium* on, 1112; effect of, on *Trich metasphaeria turcica* on maize, 1524; rel tionship between β-glucosides and, 1110.
*—, *Penicillium cyclopium* on, in Keny 2358d; effect of mercuric chloride on, 247
—, — *frequentans*, *P. funiculosum*, *P. herqu* and *P. multicolor* on, effect of mercur chloride on, 2476.
—, — *oxalicum* on, 3436; in U.A.R., facto affecting, 1525a; symptoms of, 1525b.
—, — *rugulosum* and *P. variabile* on, effect mercuric chloride on, 2476.
—, *Phaeosphaeria maydis* on, description c 1113b.
—, *Phyllachora maydis* on, in C. Americ symptoms of, 2960a.
—, *Physoderma maydis* on, in W. Cameroo 3094.
—, *Pseudomonas alboprecipitans* on, 3437.
—, — *andropogonis*, on 1171, 3437.
—, — *lapsa* on, 1113c; in India, 162; produ tion of urease by, 411.
—, — *rubrilineans* on, in India, 804.

laize, *Pseudomonas*] *syringae* on, in Yugoslavia, hosts and symptoms of, 1530.
—, *Puccinia graminis* on, resistance to, 1517.
—, — *polysora* on, in E. Africa, 1379a; Kenya, 505; Madagascar, 3065; W. Cameroon, 3094; biological control of, 152b; genetics of, 152a, 505; interaction of host and parasite, 152a; resistance to E. African races of, 1379a; var. react. to, 505.
—, — *sorghi* on, in Ecuador, 2698; U.S.S.R., 1815; W. Cameroon, 3094; adaptation of, to heat, 1771; biological control of, 152b; genetics of, 152a, 1518, 2699; interaction of host and parasite, 152a; physiologic specialization in, 153; survival of, in storage, 3381.
—, — *zeae* on, interaction of host and parasite, 152a.
—, *Pyrenochaeta terrestris* on, 161.
—, *Pythium* on, in Austria, 2030.
—, — *ultimum* on, effect of mercuric chloride on, 2476.
— rough dwarf virus on maize, electron microscopy of, 2472.
—, *Sclerospora* on, transmission of, by seed, 1109.
—, — *rayssiae* var. *zeae* on, control, 2705.
—, — *sacchari* on, control, 2705; transmission of, by seed, 1109.
—, sorghum red stripe virus on, in Rumania, 2146; *U.S.S.R., 3403; str. of sugarcane mosaic, 2146.
—, *Sphacelotheca reiliana* on, in W. Cameroon, 3094; control, 159, 3094, 3434; effect of plastic foil on incidence of, 158; factors affecting, 1108, 3433; infection by, 3433; var. react. to, 1108.
— stalk rot, effect of nutrition on, 2152; review of, 1528.
— streak virus on maize in E. Africa, 1379a; genetics of, 1515; resistance to, 1379a; transmission of mechanically, 2587a.
— stunt virus on maize, 3306; U.S.A., 2144; effect of, on yield, 1106; transmission of, by vectors, 3432.
— — +*Sorghum halepense* mosaic viruses on maize, 1106.
—, sugarcane mosaic virus, Johnson grass str., + maize stunt viruses on, 1106.
—, *Trichometasphaeria turcica* on, in Ecuador, 2698; Rumania, 397i; W. Cameroon, 3094; biology of, 397i; control, 397i, 1113a; distribution of, 397i; effect of leaf microflora on epidemiology of, 1524; of soil fertility on, 2147; of sowing density on, 509; of, on, 1522; genetics of, 2702; inhibition of, by aratan and ceresan wet, 508; overwintering of, 160; phytoalexin inhibiting germination of, 2703; reaction of, to inoculation, 2148; relationship between β-glucosides and, 1110; between susceptibility to *Ostrinia nubilalis* and, 1860; var. react. to, 1523.
—, *Ustilago maydis* on, in Austria, 1521; Papua and New Guinea, 400, 2700; *Rhodesia, 3a; control, 1520, 2475, 3434; effect of crop rotation on, 1520; of mutagenic factors on, 2474; eradication of, 400; factors affecting, 1520; gall morphology of, 2473, 2701; IAA oxidase activity in resistant and susceptible cvs., 154; non-eradication of, 2700; pathological changes in epidermis of, 1519; primary symptom of, 2151; resistance to, 397e; assessment of, 2150; selection for, 155; review of, 506; technique for inoculating, 2149.
[Maize] virus disease in N.S.W., transmission of, 2032e; U.S.A., hosts of, 150.
— — on *Sorghum halepense*, 2032e.
—, wheat stripe mosaic virus on, in U.S.S.R., 3403.
Makrolin, effect of, on fungi, versus copper and zerlate, 2983.
Malathion against vectors of *Capnodium* and *Meliola* on coffee, 1562.
Malcolmea maritima, cauliflower mosaic virus on, 2308.
Malipur against *Claviceps purpurea* on *Poa pratensis*, 1170; *Plasmopara viticola*, 2791.
Malpighia punicifolia, *Cercospora bunchosiae* on, in Hawaii and U.S.A., 2534.
Malus, apple chlorotic leaf spot+latent viruses on, effect of, on growth of, 395k.
— *platycarpa*, apple scaly bark on, ?identity of viruses causing, 2519.
— — as indicator for apple mosaic and apple witches' broom viruses, 2194; pear viruses, 2523.
— *pumila*, see Apple.
Malva parviflora, *Abutilon* mosaic virus and *A. spurium* and *A. thompsonii* viruses on, 1056.
— —, effect of extracts from, on tobacco mosaic virus, 774.
— —, lucerne mosaic virus on, identification of, 3394.
*— —, *Macrophomina phaseoli* on, in U.S.A., 2436.
— — witches' broom, *Abutilon thompsonii* virus causing, 1056.
Malvaceae infectious chlorosis, viruses causing, 1056.
Mancozeb against *Botrytis fabae* on broad bean, 419; *Leptosphaeria nodorum* on wheat, 98; *Peronospora destructor* on onion, 18, 1357; *P. tabacina*, 311, 624, 625; *Phytophthora infestans* on tomato, 18; *Pyrenophora graminea* on barley, 98; *Sclerotinia fructigena* and *S. laxa* on plum, 1615; *Ustilago avenae* on oats, 98.
— versus maneb, 98.
— in combination against *Ascochyta* and *Puccinia horiana* on *Chrysanthemum*, 3131.
—, see also Dithane M45.
Mandarin orange, see Orange.
Maneb against *Alternaria brassicicola* on cabbage, 3299h; *A. solani* on potato, 1381j; *Botrytis fabae* on broad bean, 419; *Cochliobolus sativus* on barley, 1849; *Corticium solani* on tomato, 318; *Cylindrosporium* on *Rhus trilobata* and *Shepherdia argentea*, 335; *Didymella lycopersici*, 318; *Erysiphe graminis* on barley, 1849; *Helminthosporium heveae*, 1256; *Leptosphaeria nodorum* on wheat, 98; *Marssonina brunnea* on poplar, 2853; *Mycosphaerella musicola*, 2220; *Peronospora destructor* on onion, 18, 1357, 2929; *P. farinosa* on beet, 2584r; *P. parasitica* on cabbage, 2896; *P. tabacina*, 311, 624, 625, 888, 2257; *Phytophthora infestans* on potato, 1381j; on tomato, 18; *Plasmopara viticola*, 2791; *Polystigma rubrum* on plum, 1200; *Pseudoperonospora humuli*, 2228; *Puccinia graminis* on oats, 2441; *P. hordei* on barley, 1849; *P. menthae* on peppermint, 1220, 3178; *Pyrenophora graminea* on barley, 98; *P. teres* on barley, 1849; *Ramularia beticola* on beet,

2584r; *Rhynchosporium secalis* on barley, 1849; *Septoria lycopersici*, 1968; *Streptomyces scabies* on potato, 1377g; *Uromyces dianthi*, 397f; *Ustilago avenae* on oats, 98; *Xanthomonas phaseoli* on bean, 1377h; as soil disinfectant, 3178.
[Maneb], effect of, on *Leptosphaeria nodorum* and *L. tritici* on wheat, 2130; on *Phytophthora infestans* on potato, 3185.
— ineffective against *Puccinia coronata*, 2469.
— injury to tobacco, 888.
—, methods for determining moisture content of, 3334.
— versus antracol, 2220; mancozeb, 98; zineb, 2469.
— in combination against *Cochliobolus sativus* and *Erysiphe graminis* on barley, 1849; *Fusarium roseum* and *F. solani* on cantaloupe, 2582; *Phytophthora infestans* on potato, 3e, 3185; *Puccinia allii* on chives, 3668c; *P. coronata*, 2469; *P. hordei*, *Pyrenophora teres*, and *Rhynchosporium secalis* on barley, 1849; *Septoria apiicola*, 2023; as soil disinfectant, 3093.
— — —, effect of, on maize dwarf mosaic virus on maize, 3093; on yield of *Mycosphaerella arachidis*-infected groundnut, 3d.
— 80 against *Phytophthora infestans* on tomato, 2837.
Manganese deficiency associated with citrus decline, 199.
— — in sugarcane, 3200.
—, effect of, on Barakovo black spot on tobacco, 1673; on *Helminthosporium*, 2063; on hop leaf roll virus on hop, 277; on *Streptomyces scabies*, 3664a; on *Tilletia caries* on wheat, 2127.
— nutrition of *Corynebacterium sepedonicum*, 4b.
— toxicity in celery, 711.
— sulphate against fungi on cucumber, 2581.
— —, effect of, on *Fusarium oxysporum* f.sp. *lycopersici*, 319.
— superphosphate, effect of, on rhizosphere microflora in relation to *Verticillium* on cotton, 213.
Mangifera indica, see Mango.
Mango (*Mangifera indica*), *Diplodia natalensis* on, in India, 269; control, 269, 3342.
—, *Glomerella cingulata* on, effect of trace elements on, 2062; of vitamins on, 432.
Manihot utilissima, see Cassava.
Manila Hemp, see *Musa textilis*.
Manzate against *Alternaria solani* on potato, 3186; *Cercospora nicotianae* on tobacco, 2831.
Maple, see *Acer*.
Marasmius palmivorus on oil palm, 596, 871, 872.
— *perniciosus* on cacao, 781b.
*— *sacchari* on sugarcane, 2359a.
Marcin against *Phytophthora infestans* on potato, 1396; on tomato, 1677.
Market garden crops, diseases of, 3611; in India, 1465; control, 1745e; handbook on, 950.
Marrow, see Vegetable Marrow.
Marssonina brunnea on poplar, 2853, 3219, 3585.
— *panattoniana* on lettuce, 968.
— *populi* on poplar, 2031g.
— *populi-nigrae* on poplar, 3219.
— *salicicola* on *Salix*, 336, 3219.
**Massariella viticola* on grapevine, 86.
**Mastigosporium album* on *Alopecurus pratensis*, 2586a.
— *rubricosum* on *Dactylis glomerata*, 2743.
Mastisan, effect of, on fungi on banana, 27
'Mastpilz A' on timber, 932.
Matthiola, *Fusarium solani* on, control, 312
—, *Peronospora parasitica* on, in N.S.W. 2032d.
*— *incana*, *Peronospora parasitica* on, N.S.W., 2737.
Maurandia, *Cercospora antirrhini* on, survi of, 1149.
Maxicrop against *Botrytis cinerea* on stra berry and *Erysiphe polygoni* on turnip, 178
—, effect of, on damping-off of tomato, 1783.
MBR–CP and MBR–CP–PBR as soil disi fectants, 355.
MC 1053 against powdery mildews, 20.
—, effect of, on *Erysiphe cichoracearum* c cucumber, 972.
MC 1072 against powdery mildews, 20.
MCO against *Coniella diplodiella* on grap vine, 1935.
MCPA, effect of, on lettuce mosaic virus c lettuce, 2938.
M-cresol against *Agrobacterium tumefaciens* c fruit and *Pseudomonas savastanoi* on oliv 3322.
Meconopsis, *Peronospora arborescens* on, i W. Scotland, 1746d.
Medicago, *Cercospora zebrina* and *Pseud peziza medicaginis* on, in Brazil, 1168b.
— *lupulina*, clover enation (?)virus on, 2515.
— *sativa*, see Lucerne.
Megoura viciae transmitting Leguminosa viruses, 2318; pea enation mosaic virus, 362
Melampsora allii-populina on poplar, 912.
**Melampsora euphorbiae* on *Euphorbia fulgens* 730c.
— *larici-populina* on poplar, 660, 912, 1689.
— *lini* on flax, see Flax.
— — on linseed, 1578.
— *medusae* on poplar, 1310.
— — on *Pseudotsuga menziesii*, 643e.
— *populnea* on pine, 3231.
— — on poplar, 333.
— *ricini* on *Ricinus communis*, 3731a.
Melanconiopsis elzoi on timber, 1990.
Melanomma coniothyrium on *Salix*, 336.
Melanospora parasitica on *Beauveria bassiana* 2976.
Melilotus, bean yellow mosaic virus on, i Bulgaria, 1460.
—, potato virus Y and tobacco etch virus ca infect, 1455.
— *italicus*, potato virus A can infect, 1455.
Melinis minutiflora stunting ?virus in Kenya transmission of, by insects, 1379c.
Meloidogyne arenaria, associated with *Aspergillus flavus* and *A. niger* on groundnut, 37
— *hapla* associated with *Agrobacterium tume faciens* on raspberry, 2777.
— — + *Fusarium oxysporum* on *Chrysanthemum*, 225.
— *incognita* associated with *Fusarium oxysporum* f.sp. *lycopersici*, 3216.
— —, effect of, on incidence of *Fusariu oxysporum* f.sp. *vasinfectum* on cotton, 822 on *Pseudomonas solanacearum* on tomat 3577.
— — transmitting *Fusarium oxysporum* f.sp *lycopersici*, 1676.

feloidogyne] *javanica* associated with *Fusarium* on flax and *Hibiscus cannabinus*, 3457.
elolontha melolontha, microbiological control of, by *Beauveria tenella*, 737d.
elon (*Cucumis melo*), cucumber mosaic virus on, 1745i; control, 1745j.
, *Fusarium* on, cross protection between strs. of, 974.
, — *equiseti* on, in Israel, pathogenicity of, 1466.
, — *oxysporum* f.sp. *melonis* on, 3611; in Belgium, 1374e; Canada, 978q; control, 716, 978q, 2349; cross-protection by, against other strs. of, 974; heterogeneity of, 1374e; technique for producing different spore forms of, 1374f.
-, *Mycosphaerella melonis* on, in U.S.A., genetics of resistance to, 1738.
-, *Pseudoperonospora cubensis* on, in S. Africa, 969.
-, *Pyrenochaeta* on, 3611; var. react. to, 2947.
-, *Pythium ultimum* on, in Canada, effect of soil temp. on, 978p.
- shot hole virus on Cucurbitaceae, 3611.
- — — — on melon, properties and transmission of, 3611.
-, *Verticillium* on, susceptibility to, 478.
-, ?watermelon mosaic virus type 2 on, in U.S.A., symptoms and transmission of, by vectors, 1363.
Melprex against *Blumeriella jaapii* on cherry, 3302c; *Cylindrosporium maculans* on mulberry, 1630; *Marssonina brunnea* on poplar, 2853.
Mema A as 'short wet' seed treatment for cotton, 828.
MEMC for disinfecting potato tubers, 1376c.
Memnoniella on cellulose and paper, 2988.
Menazon against vectors of beet yellows virus and as seed treatment for beet, 3624.
Mentha enation virus serologically related to stolbur virus, 3526.
— *arvensis*, strawberry latent ring spot virus on, transmission of, by seed, 3508.
— *piperita*, see Peppermint.
— *spicata*, *Puccinia menthae* on, in N.S.W., 2032c.
Mercuran against grapevine canker, 2540; as seed treatment for sunflower, 2231; for wheat, 120.
Mercuric chloride against *Helminthosporium allii* on garlic, 1377j; *Leptosphaeria salvinii* on rice, 811; *Macrophomina phaseoli* on *Colocasia esculenta*, 2953; mycoflora on groundnut, 3645; *Plasmodiophora brassicae* on cabbage, 2307; *Xanthomonas phaseoli* on bean, 1377h; as seed treatment for cabbage, 1339; *Capsicum*, 720; cotton, 2176; *Setaria italica*, 2154; spinach, 3261; as soil treatment against *Sclerotium cepivorum* on onion, 2933a.
— —, effect of, on *Cochliobolus miyabeanus*, 1545; on growth of fungi on maize, 2476.
Mercuric-mercurous chloride mixture, tolerance of *Sclerotinia homoeocarpa* on *Agrostis* to, 2745.
— nitrate, effect of, on *Cochliobolus miyabeanus*, 1545.
Mercurite as seed treatment for pea, 2905.
Mercurous chloride against *Plasmodiophora brassicae* on cabbage, 2307.
Mercury against *Fusarium oxysporum* f.sp. *tulipae* on tulip, 844.
[Mercury] as seed treatment for barley, 2442; cereals, 1819, 3406; potato, 3664b; wheat, 1092, 2442.
— injury to tulip, 844.
—, sensitivity of *Rosellinia thelena* on oak to, 2850.
— compounds, organic, against *Corticium solani* and *Phoma solanicola* on potato, 1376b; *Puccinia carthami* on safflower, 3176; *Pythium ultimum* on parsley, 714; *Venturia inaequalis*, 397k; as seed treatment for cotton, 2176; oats, 1858.
— —, —, effect of residues of, on potato seed, 1655.
— —, —, inhibition of *Gloeosporium alborubrum* on *Hevea* rubber by, 880d.
— —, —, injury to oil palm, 3181.
Merfusan against *Corticium fuciforme* on turf, 1592.
Merulius lacrymans, see *Serpula lacrimans*.
**Mesembryanthemum criniflorum*, *Peronospora mesembryanthemi* on, in Great Britain, 1063a.
Metal, fungi on, evaluation of fungicides against, 997.
Metarrhizium anisopliae, effect of, on mosquito larvae, 737e.
— — on locusts, 2977.
Meta-sodium as soil disinfectant, 390g.
Metasol in combination as seed treatment for groundnut, 2019.
Metasystox against beet yellows virus on beet, 2901.
— R against beet yellows virus on beet, 1706.
Metham-sodium as soil disinfectant, 279.
Methiram against *Peronospora destructor* on onion, 2929.
6-methoxy-benzoxazolinone, inhibition of *Ostrinia nubilalis* and *Trichometasphaeria turcica* by, 1860.
2-methoxy ethyl mercury acetate, see Mema A.
Methyl-arsine, effect of, on *Aspergillus flavus* and *A. niger* on groundnut, 2016.
— bromide against damping-off of tobacco, 1381e; *Fusarium oxysporum* f.sp. *lycopersici* on tomato, 2356i; *Plasmodiophora brassicae* on cabbage and *Pyrenochaeta terrestris* on tomato, 394j; as soil disinfectant, 17, 640, 897, 1026a, 1675, 1886, 1962, 2343, 2356e, f, 2849, 3459c, i, 3594.
— — as timber preservative, 1334.
— —, effect of, on *Fusarium oxysporum* f.sp. *lycopersici* and *Verticillium alboatrum* on tomato, 1970.
— — in combination as soil disinfectant, 3074.
— hydrazone ineffective against *Cronartium comptoniae* and *C. quercuum* on pine, 3233.
— parathion against vectors of *Capnodium* and *Meliola* on coffee, 1562.
— dithiocarbamate, effect of, on *Pythium ultimum* on pea, 978c.
a-methylene-butyrolactone, isolation of, from tulip bulbs, 231.
Methyl ethoxy mercuric chloride, see MEMC.
— isothiocyanate a constituent of trapex, 17.
— — compound as soil disinfectant, 1026a.
N-methylmercuric-di (*p*-toluensulphon)-imide against *Tilletia foetida* on wheat, 1839.
— mercury dicyandiamide and 8-hydroxyquinolinate against *Fusicoccum amygdali* on peach, 1202.

2-methyl-thio-3-methyl-4-thio-6-azauracil, fungistatic activity of, 3690.
Metiram against *Peronospora tabacina*, 625.
Mezineb against *Alternaria brassicicola* on cabbage, 3299h.
Microbiology, agricultural, treatise on, 2972.
—, Annual Review of, Vol. 21, 9.
—, fluorescing antibodies, use of in, monograph on, 1047.
— of fabricated materials, book on, 2593.
—, of food, manual on, 2973.
—, industrial progress in, book on, 423.
—, techniques in, book on, 990.
Microfungi, ecology and review of, 1004.
— in soil, 37.
— on *Heracleum sphondylium* and *Urtica dioica*, 2970a, b.
Micronegeria fagi on *Nothofagus obliqua*, 1981.
Microsphaera alni on pecan, 1686.
— *alphitoides* on oak, 20, 910, 1809.
— *berberidis* on barberry, 1809.
— *penicillata*, C.M.I. description of, 3731b.
Miedzian 15, see copper oxychloride.
Milk, commercial evaporated, against sugarcane chlorotic streak virus, 882b.
Miller fungicide 658 against *Cercospora nicotianae* on tobacco, 2831.
Millets, bacterial diseases of, in India, 1113h.
Miltox against *Plasmopara viticola* on grapevine, 2791.
Mimulus lewisii, *Ramularia lewisii* on, in Canada, 2622.
Mirrol against sugarcane chlorotic streak virus, 882b.
Mitrula sclerotiorum associated with *Sclerotinia trifoliorum* on clover in Poland, 2189.
Molybdenum as seed treatment for cotton, 2488.
—, effect of, on resistance of cotton to *Verticillium*, 212; on *Verticillium* on cotton, 2488.
Momordica charantia, *Fusarium solani* f.sp. *cucurbitarum* on, in India, 3061.
Monilia roreri on cacao, 1469.
Moniliaceae (Mucedinaceae), key to identification of, 3037.
Moniliopsis aderholdii, form of *Corticium solani*, 455.
— — on cucumber, 2945.
Monilochaetes infuscans on sweet potato, 2819.
Monolinuron against *Cercosporella herpotrichoides* on wheat, 2678.
Monomycin, effect of, on *Fomes tremulae*, 2388.
**Monstera deliciosa*, *Botryodiplodia theobromae* on, 545.
Morestan against *Erysiphe cichoracearum* on tobacco, 1278; *Oidium* on tomato, 2836; *Sphaerotheca fuliginea* on cucumber, 2347.
—, methods for sensitive determination of residues of, in plants, 2384.
Morocide against *Sphaerotheca fuliginea* on cucumber, 2347.
Mortierella vinacea in soil, 1318.
Morus, see Mulberry.
Mosquito, effect of *Metarrhizium anisopliae* and its toxins on larvae of, 737e.
Mottled rose mosaic virus, see rose mottled mosaic virus.
Mucor against *Numicia viridis* on sugarcane, 1259b.
— *hiemalis*, effect of oxygen deficiency on sporulation of, 1173c; of quintozene on, 1173c.
— — in soil, 1781.
[*Mucor hiemalis*] on beet, stored, 2903.
— *plumbeus*, autotropism in spores of, 2051.
— *racemosus* on tobacco, 3565.
— *ramannianus*, inhibition of, by potassium cyanide, 36.
— —, lysis of cell walls of, by *Streptomyces* 2397.
— — on spruce, 1326.
— *spinosus*, effect of quintozene on, 1173c.
Mucorales in India, list of, 45.
Muehlenbergia hugelii, *Puccinia graminis* a *P. striiformis* on, 2660.
*Mulberry (*Morus*) curly little leaf ?vir disease in U.S.S.R., symptoms of, 1977.
—, *Cylindrosporium maculans* on, in U.S.A. 1630.
— dwarf virus on mulberry in *U.S.S.R. aetiology of, 1685; control, 655, 656; structures in tissues infected by, 657; transmissi of, by grafting, 1685.
—, *Oospora virescens* on, antibiotic activity 745.
Murex trunculus, inhibitor to TMV from, 12
Murphane against *Plasmopara viticola* grapevine, 2791.
**Murraya exotica*, *Phoma herbarum* on, India, 546.
Musa, *Deightoniella torulosa* on, C.M description of, 3030.
— *balbisiana* × *M. textilis*, abaca mosaic vir on, reaction to, 220.
— *nana*, see Banana.
— — var. *sapientum*, see Banana.
— *textilis*, abaca mosaic virus on, transmissi of, by vectors, 1577.
— —, *Pseudomonas solanacearum* on, in Per 1933.
— — × *M. balbisiana*, abaca mosaic virus o reaction to, 220.
Muscari parviflorum, *Uromyces christensenii* c in Israel, 137.
Mushroom (*Agaricus*), antibiotic activity 2954.
—, bacterial spotting of, control, 3662.
*—, *Chaetomium olivaceum* on, in Rumani 727.
— cultivation, effect of bacteria on develo ment of, 3298.
— dieback virus in England, disease in De mark identical with? 977; Netherlands, isol tion of, 1f.
*—, *Diplocladium*(?) *majus* on, in N.S.W 2032i.
— handbook, English edition of America publication, 3310.
—, *Monilia* in compost of, effect of sucrose growth of, 390h.
—, *Mycogone perniciosa* on, resistance of mon spore strs. of, to, 1742; spread of and tran mission of, by water, 3661.
*—, *Papulospora byssina* on, in Rumania, 72
—, *Plicaria fulva* on, perfect state of *Botry crystallina*, and resemblance of virus-lik particles in, to mushroom virus 1, 1741.
—, *Pseudomonas tolaasii* on, causing mumm disease, 3663; epidemiology of, 728.
—, *Trichoderma* on compost of, effect sucrose on growth of, 390h.
—, use of bactericides and fungicides in grow ing, 1375c.
—, *Verticillium malthousei* on, control a effect of, on yield, 1374m.
*— virus disease in Denmark, ?identical wi

mushroom dieback in England, *Mycophagapicorna psalliotae* proposed as name for, 977; in Netherlands, technique for isolating particles of, 1740.
[mushroom virus] diseases, in Europe and N. America, review of, 976; diagnosis of, 1372.
muskmelon, see Melon.
mustard, Black (*Brassica nigra*), *Pseudomonas* on, resemblance of to *P. syringae*, 3299k.
—, Chinese (*Brassica juncea*), *Erysiphe polygoni* on, in India, perithecial state of, 364.
—, Indian (*Brassica campestris* var. *sarson*), *Erysiphe polygoni* on in India, perithecial state of, 364.
—, —, radish mosaic virus on, effect of plant extracts and microbial growth products on infectivity of, 471.
—, White, see *Sinapis alba*.
Mycena citricolor on *Cephaelis ipecacuanha*, 3175.
Mycerin, effect of, on *Fomes tremulae*, 2388.
Mycoflora in Chile, addenda to index of, 3032.
— in Hungary, review of, 44, 1437, 2619, 3735.
— in Portugal, new records for, 2414.
Mycogone perniciosa, inhibition of, by mushroom, 2954.
— — on mushroom, 1742, 3661.
Mycoleptodiscus, taxonomy of, 1597.
— *sphaericus* and *M. terrestris* associated with crown and root rot of *Lotus corniculatus*, 1597.
Mycologia Index, Vol. 1–58, 1909–1966, cumulative general index, 3678.
Mycological dictionary, Portuguese, 1752.
— literature, taxonomic pattern of, 445.
— records in Poland, list of, 2618.
Mycology, developments in, at Moscow Univ. in the last 50 years, 981.
— of pine litter, 3219b.
—, Review of applied, Plant host-pathogen index to vols. 1–40 (1922–1961), 1384.
—, marine, conference on, 2955.
Mycophagapicorna psalliotae proposed as name for mushroom virus in Denmark, 977.
Mycoplasma ?causing plant diseases, 3672.
Mycorrhiza, French book on, 2990.
— of *Afzelia bella*, 2050.
— of cereals in Poland, 1412.
— of chestnut and *Corylus avellana*, 424.
— of *Eucalyptus*, 1003, 2602.
— of larch, 424.
— of *Liquidambar styraciflua*, 2849.
— of oak, 424, 3710.
— of pecan, 3225.
— of pine, see Pine.
— of shrubs in U.S.S.R., 1001.
— of strawberry, 3669d, 3712.
— of trees, 2271c; in Germany, 1410, 1767; U.S.S.R., 1001.
— of vanilla, 2960f.
— of walnut, 3349.
— of weeds in Poland, 1412.
—, saprophytic fungi isolated from, 424.
—, uptake of P^{32} by vesicular-arbuscular, 3347.
Mycosphaerella in Japan, 2620.
— *arachidicola*, see *M. arachidis*.
— *arachidis* on groundnut, see Groundnut.
— —, technique for inoculating and isolating single spores of, 1729.
— *areola* on cotton, 1896.
— *berkeleyi* on groundnut, see Groundnut.
— —, technique for inoculating and isolating single spores of, 1729.
[*Mycosphaerella*] *citrullina*, see *M. melonis*.
— *cucumis*, see *M. melonis*.
— *fragariae* on strawberry, 2781.
— *ligulicola*, effect of culture filtrate of *Bacillus cereus* var. *mycoides* on, 3698.
— —, hosts of, 1905.
— —, inhibition of, by actidione, 3698.
— — on *Chrysanthemum*, 1154.
— *linorum* on linseed, 1578.
— *melonis* on cucumber, 1737, *2025, *3292.
— — on melon, 1738.
— — on pumpkin and squash, 2943.
— — on watermelon, 1365.
— *musicola* on banana, see Banana.
— *pinodes* on pea, see Pea.
— —, utilization of pisatin by, 1722.
— *rabiei* on *Cicer arietinum*, 2924.
*— *sapindicola* on *Sapindus*, 3590.
— *sentina* on pear, 1609.
Mylone as compost disinfectant, 714; as soil disinfectant, 694b, 2491, 3594.
Myrica gale, survival of root-nodule endophytes of, in soil, 3348.
Myrobalan, see *Prunus cerasifera* var. *divaricata*.
Myrothecium roridum on coffee, 3446.
*— — on *Hypocyrta glabra*, 227.
*— — on *Sesamum orientale*, 868.
— *verrucaria*, effect of light on growth and sporulation of, 752.
— — on wood pulp, 936.
Myxomycetes in U.S.S.R., 3303.
Myzus persicae, differences in flight capacity of spring and summer forms in relation to virus transmission, 1449.
— —, *Entomophthora coronata* on, factors affecting, 1757.
— — not transmitting plum line pattern virus, 3156.
— —, presence of (?)beet western yellows virus in, 2000.
— — transmitting alfalfa mosaic virus, 3054; bean leaf roll virus, 3630; bean yellow mosaic virus, 3305h; beet mild yellows virus, 1708; beet mosaic virus, 3390; beet western yellows virus, 777, 944; beet yellows virus, 2357a; cucumber mosaic virus, 701a, b, 1739, 1745i, 3054; cucumber mosaic virus strs., 721, 2639, 3389; eggplant mosaic virus, 2951; *Iris* mosaic virus, 2183; Leguminosae virus diseases, 2318; lettuce mosaic virus, 3390; maize mosaic virus, 1107; passion fruit woodiness virus, 270; pea enation mosaic virus, 2577, 3628; pea false leaf roll virus, 1714; pea mosaic virus, 1715; plum pox virus, 2763; potato leaf roll virus, 287; potato virus diseases, 2235; potato viruses M and S, 394e; tomato aspermy virus, 3054; turnip mosaic virus Japanese str., 468; turnip yellows virus, 395g; (?)watermelon mosaic virus type 2, 1363.

Nabam against *Phytophthora capsici* on *Capsicum*, 2949; as compost disinfectant, 714; as soil disinfectant, 3466.
Naemacyclus niveus on forest trees, 919a.
— — on pine needle litter, 349.
Narcissus mosaic virus on *Narcissus*, 840; detection of, 1457.
—, NEPO viruses on, effects, incidence and spread of, 3301j.
—, *Penicillium corymbiferum* on, in Germany, 833.

[*Narcissus*], *Stagonospora curtisii* on, control, 390f.
— virus on *Narcissus*, 840.
— virus diseases, 390m.
— yellow stripe virus on *Narcissus*, rapid detection of and transmission of, by vectors, 840.
**Narenga porphyrocoma*, *Puccinia erianthi* on, 1959.
Nasturtium officinale, see Watercress.
— — × *N. microphyllum*, see Watercress.
National Fungus Collections, Beltsville, Md, U.S.A., account of, 3732.
Natural History of Viruses, book on, 2099.
NC 1584 against *Glomerella cingulata* and *Hemileia vastatrix* on coffee, 1559.
N-dimethyl amino succinamic acid, see Alar.
Nectarine (*Prunus persica*) stem pitting in U.S.A., 3669c; symptoms of, 3669c; var. react. to, 2764; ?virus causing, 3669c.
Nectria cinnabarina on apple, 1181.
— — on currant, 2031e, 3302b.
— — on plum, 1181.
— *galligena*, C.M.I. description of, 1035a.
— — on apple, see Apple.
— — on aspen, 1978.
— — on currant, 3302b.
— — on *Salix*, 1978.
— *pterospermi* on *Pterospermum*, 3014.
— *purtonii*, effect of *Cryptodiaporthe populea* and *Trichothecium roseum* on germ tube growth of, 49.
— *radicicola*, association of, with *Pseudotsuga menziesii* corky root disease, 2881.
— —, C.M.I. description of and hosts of, 1035a.
— — on cyclamen, 3459c.
— — on *Rhododendron*, 1374n.
— — on trees, 2272.
Nemagon as seed treatment for wheat, 3074; soil disinfectant, 261, 1895.
—, effect of, on *Fusarium oxysporum* f.sp. *vasinfectum* on cotton, 1895.
Nematodes, associated with *Macrophomina phaseoli* on groundnut, 376; with *Pseudotsuga menziesii* corky root disease, 2881; with *Pythium* on pecan, 3225; with *Sclerotium rolfsii* on *Eleusine coracana*, 1113q.
—, effect of, on fungi in kernels and shells of groundnut, 3643; on pine mycorrhizal relationship, 2603; on virulence of *Thielaviopsis basicola* and *Verticillium alboatrum* on cotton, 528.
—, fungi on, effect of calcium cyanamide on, 3331; N nutrition of, 35.
—, taxonomic problems of phytoparasitic, 986f.
— transmitting *Ceratocystis fimbriata*, 1470a; ring spot viruses, 2589; tobacco rattle virus, 1059; tobacco ring spot virus, 3208; grapevine infectious degeneration virus, 2589.
Nematospora coryli, C.M.I. description of, 3731b.
— *gossypii* on cotton, 3731b.
Neocosmospora vasinfecta on cowpea, 83.
Neovossia brachypodii and *N. indica*, teliospore morphology of, 3738.
Nephotettix apicalis transmitting rice transitory yellowing virus, 3102.
— *bipunctatus* transmitting experimentally rice yellow dwarf virus, 1114.
— *cincticeps* transmitting rice transitory yellowing virus, 3102.
[*Nephotettix*] *impicticeps* transmitting rice
yellowing virus, 169; rice tungro virus, 5
2155; rice yellow dwarf virus, 2155; r
yellow orange leaf virus, 1115, 2155.
NEPO viruses on *Narcissus* and tulip, 3301j.
**Nerine bowdenii*, *Gibberella fujikuroi* v
subglutinans on, in Germany, 1159.
Nerium oleander, see Oleander.
Neurospora crassa, effect of captan on, 368
— *sitophila*, primary luminescence of, 460.
Niacide-Z against *Hemileia vastatrix* on coff
2722.
Nicandra physaloides as indicator plant
potato virus Y tobacco vein-browning
1645.
— —, potato spindle tuber virus on, 3395.
Nichinou phytomycin in combination ag
Xanthomonas citri on citrus, 1130.
Nickel in combination against *Cochliob*
sativus, *Erysiphe graminis*, *Puccinia hor*
Pyrenophora teres, and *Rhynchospori*
secalis on barley, 1849.
— chloride against *Exobasidium vexans* on t
621c; *Uredo* on *Albizia stipulata*, 621a.
— —, effect of, on *Penicillium*, 757.
— sulphate against *Peronospora parasitic*
cabbage, 3616.
— — ineffective against *Cronartium compton*
and *C. quercuum* on pine, 3233.
— — in combination against *Puccinia corona*
2469.
Nicosan-3, effect of, on *Erysiphe graminis* a
Puccinia striiformis on wheat, 1836.
Nicotiana, *Corynebacterium michiganense* c
var. and spec. react. to, 1972.
—, *Peronospora tabacina* on, in Australia, st
of, 1380a.
— *clevelandii*, *Arabis* mosaic virus on, effect
blue light on infection of, 2641.
— —, bean yellow mosaic virus can infe
1460.
— —, *Peronospora tabacina* can infect, 1668.
— —, plum pox virus on, transmission of,
sap and vectors, 2763.
— —, tobacco rattle virus on, ultrastructure
3301h.
— *debneyi*, as indicator for potato mop t
virus, 3301k.
— —, potato spindle tuber virus on, 3395.
— —, *Thielaviopsis basicola* on, resistance
978n.
— *exigua* as indicator for potato virus
1744d.
— —, *Peronospora tabacina* on, resistance
1965.
— *glauca*, tobacco mosaic virus str. U_2 c
3385.
— *glutinosa* as indicator plant, 632; for toba
rattle virus, 2494.
— —, effect of, on virulence of *Peronosp*
tabacina, 2260.
— —, *Peronospora tabacina* can infect, 1668.
— —, potato spindle tuber virus on, 3395.
— —, — virus X on, detection of, 78.
— —, tobacco mosaic virus on, 80; effect
actinomycin D and kinetin on susceptibil
to, 1050; of DMSO on, 1664; of extra
from *Abutilon striatum* on, 774; inhibition
by chemical compounds, 1801; by wh
extracts, 464; by yeast RNA, 2422; mo
ment of, in, 1662; necrotic lesion formati
in, 1663.
— —, tobacco mosaic virus str. on, 2740.

otiana] *megalosiphon*, plum line pattern
rus on, 3156.
lumbaginifolia, *Peronospora tabacina* on,
orage of, 2258
—, *Phytophthora nicotianae* on, in Puerto
ico and U.S.A., 889.
ustica, potato spindle tuber virus on, symp-
oms of, 3395.
—, tobacco mosaic virus on, effect of DMSO
n, 1664.
— var. *humulis*, aster yellows virus on, effect
f, on transport through plant stems, 473.
uaveolens, effect of, on virulence of *Perono-
pora tabacina*, 2260.
sylvestris mosaic in India, resembling tomato
nation mosaic str. of tobacco mosaic virus,
17.
—, tobacco mosaic virus on, isolation and
quantitative assay of, strs. of, 1272.
tabacum, see Tobacco.
rospora musae on banana, 2032r.
- *sphaerica* on maize, 2358d.
trafen against *Elsinoe ampelina* on grapevine,
1634; *Mycosphaerella fragariae* on straw-
berry, 2781; *Plasmodiophora brassicae* on
cabbage, 2895; *Rhacodiella vitis* on grape-
vine, 1934; as soil disinfectant, 612.
traria schoberi, *Cladosporium nitrariae* on,
description of, 451.
itrogen deficiency in oil palm, 596.
, effect of, on fungi on wood pulp, 936; of, on
Fusarium solani f.sp. *phaseoli*, 2909; on
Glomerella cingulata, 433; on *Lolium* mosaic
virus on *Lolium*, 2584f; on maize stalk rot,
2152; on *Ophiobolus graminis* on buried
wheat straw, 1098b; on *Peronospora farinosa*
on beet 946; on susceptibility of *Capsicum*
to *Xanthomonas vesicatoria*, 3318; of peach
to *Fusicoccum amygdali*, 1202; to *Xantho-
monas pruni*, 3318; of rice to *X. oryzae*, 2712;
on toxicity of cycloheximide to *Pythium
aphanidermatum*, 426b; on *Trichometaspha-
eria turcica* on maize, 509; on *Ustilago
scitaminea*, 3202; *Verticillium dahliae*, 34.
dioxide injury to crops in U.S.A., 3701.
-nitrosoethylurea, effect of, on *Erysiphe
graminis* and *Puccinia striiformis* on wheat,
1836.
)*Nocardia* against *Fusarium roseum* on
carnation, 1582.
okmat F–75 against *Elsinoe ampelina* on
grapevine, 3171.
orthern cereal mosaic virus on cereals, 3071.
thofagus obliqua, *Micronegeria fagi* on, in
Chile, stage of *Caeoma sanctae-crucis*, 1981.
ovoimanin against *Corynebacterium fascians*
on strawberry, 1929.
ovozir against *Colletotrichum lagenarium* on
cucumber, 971.
N–50 and N–50 in combination against
Lophodermium pinastri on pine, 2865.
umicia viridis on sugarcane, 1259b.

ak (*Quercus*), *Arcangeliella asterosperma*
forming mycorrhiza on, in Italy, 3710.
, *Ceratocystis fagacearum* on, in U.S.A., 329,
909; *C. roboris* on oak in U.S.S.R. different
from, 329; epidemics of, 909; longevity of, in
roots, 658; review of source of infection and
transmission of, 3223; role of auxin in, 3224.
, — *roboris* on, in U.S.S.R., 329; asexual
stages of, 329; different from *C. fagacearum*
on oak in U.S.A., 329.
[Oak], *Coniophora puteana* on, biology of,
1702.
—, effect of *Boletus edulis* culture on roots of,
2389.
—, *Fomes fomentarius* and *F. pinicola* on
biology of, 1702.
—, *Gnomonia quercina* on, differentiation of,
from *G. platani* on *Acer pseudoplatanus*,
911; *Gloeosporium quercinum* imperfect state
of, 911.
—, *Graphium roborus* and *Hyalodendron roborus*
on, in U.S.S.R., asexual stage of *Ceratocystis
roboris*, 329.
—, *Microsphaera alphitoides* on, in Switzerland,
1809; control, 910; evaluation of fungicides
against, 20.
—, mycorrhiza of, in Italy, 3710.
*—, *Phyllosticta ilicicola* on, in Portugal, 2414.
—, *Rosellinia thelina* on, comparison of hosts
and morphology of with *R. quercina*, 2850.
—, *Typhulochaeta japonica* var. *couchii* on, in
U.S.A., 3583.
*—, *Valsa ceratophora* on, in Portugal, 2414.
Oats (*Avena* spp.), *Aspergillus flavus* on, factors
affecting infection and germination of, 1467.
—, barley yellow dwarf virus on, in Denmark,
730b; breeding against, 799; effect of aphid
nos. and growth stage on tolerance to, 95;
hosts of, 730b; movement of, 3090; toler-
ance to, 3300c; transmission of, by vectors,
3090; var. react. to, 799.
—, *Cercosporella herpotrichoides* on, 2357h.
—, *Cochliobolus victoriae* on, effect of cyto-
kinins on absorption of victorin by, 1857; of
specific toxin on host cell membranes, 1854;
of victorin on, 1855; factors affecting, 1856.
— diseases in Argentina, 2117; U.S.A., aeti-
ology and importance of, 141; control, 141,
1473; review of, 100; severity of, 2117;
symptoms of, 1473.
—, *Erysiphe graminis* on, effect of cationic com-
pounds on, 1103; factors affecting, 1820;
intensity of, 3300a.
— foot rot, resistance to, 1094.
—, frost damage, review of, 100.
—, *Fusarium roseum* on, in France, effect of
preceding crop on incidence of, 99.
—, — — f.sp. *cerealis* 'Culmorum' on, sporu-
lation of, 3430.
—, *Ophiobolus graminis* on, in France, hosts of,
144; similarity of, to *O. graminis* f.sp.
avenae, 1098a.
—, *Pseudomonas coronafaciens* on, effect of
light on symptomatology of, 145.
*—, — *striafaciens* on, in Japan, characteristics
of, 2693.
— pseudorosette virus, study on, 1795.
— — —, see also northern cereal mosaic virus.
—, *Puccinia coronata* on, in Canada, 800, 3075;
Kenya, 2358c; S. Africa, 2692; U.S.S.R.,
1815; biotypes of, 2470; control, 2441, 2469;
physiologic races of, 2692; tolerance to,
1509; var. react. to, 800, 801, 2358c, 2692;
virulence of, 800; virulence patterns in
isolates of, 2471.
—, — *graminis* on, in Canada, 3075; Israel,
1102; Kenya, 2358c; U.S.A., 3078; control,
2441; effect of, on quality and yield, 3092;
formation of appressoria by, 103; genetics of,
1102, 1510; germination of uredospores on
epidermis of, 103; new and virulent race of,
1102; nuclear abnormalities in uredinial
mycelium of, 142; physiologic races of,

3078, 3404; spec. react. to, 2660; var. react. to, 2358c.
[Oats], *Pyrenophora avenae* on, in Northern Ireland, resistance of, to organomercury, 1858.
—, *Pythium aphanidermatum* on, pathogenicity of, 2442.
*—, — *myriotylum* on, susceptibility to, 2434.
—, — *splendens* on, pathogenicity of, 2442.
—, rice hoja blanca virus on, transmission of, by vectors, 3103.
—, *Septoria tritici* f.sp. *avenae* on, in Brazil, 1168a.
—, soil-borne mosaic virus on oats in England, 2584g; Wales, 3665c; similarity of, to N. American str., 2584g.
— sterile dwarf virus on oats, 1475; transmission of, by vectors, 1508.
—, tobacco rattle virus on, in England, 2584g.
—, *Ustilago avenae* on, in Poland, 3406; U.S.A., 503; control, 98, 1480, 1511, 3406; distribution and prevalence of virulence of, 503; incidence of, 3406; method for testing fungicides against, 1853; race population dynamics in, 502; spore dispersal and natural infection in, 143.
—, — *hordei* on, control, 2445.
—, wheat striate mosaic virus (European) on, transmission of, ?by vectors, 3665d.
—, — stunt virus on, incidence of, 1474.
Observationes mycologicae, facsimile of Lipsiae edit., 1032.
Odontia bicolor on *Abies grandis*, 2858.
— — on *A. lasiocarpa*, 2859.
— — on timber, 932.
Officinals, virus diseases of, in Germany, review of work on, 2637.
Ohamycin, effect of, on tobacco mosaic virus and potato virus X on tomato, 2108.
—, toxicity of, to tomato, 2108.
Oidium chrysanthemi on *Chrysanthemum*, 3131.
— *heveae* on *Hevea* rubber, 1258, 3549a.
— *lini* on flax, 537.
— *passerinii* on *Laurus nobilis*, 2501.
Oil against *Cercospora citri-grisea* on citrus, 2960c; cucumber mosaic virus on melon, 1745j; fungi on tomato, 3218; plant virus diseases, 3047.
—, effect of, on transmission of viruses by vectors, 3390.
— in combination against *Cercospora citri-grisea* on citrus, 2960c; *Mycosphaerella musicola* on banana, 2220; *Peronospora tabacina*, 627; *Pseudomonas lachrymans* on cucumber, 996; *Scirrhia pini* on pine, 919c; *Sclerotinia fructicola* on stone fruit trees, 2032q; as timber preservative, 681.
— Palm (*Elaeis guineensis*), *Armillaria mellea* on, characteristics of, 595.
— — blast disease, characteristics of, 595; incidence of, 3180.
— —, book on, 1639.
— —, boron deficiency in, control, 2804.
— — bud rot in Malaysia, 872; characteristics of, 595; ?*Erwinia lathyri* causing, 595.
— —, *Ceratocystis paradoxa* on, in Sabah, 596; incidence of, 3180.
— —, *Cercospora elaeidis* on, characteristics of, 595; incidence of, 3180.
— — Conference, London, 595.
— —, *Corticium solani* on, in Sabah, 596.
— — crown disease in Malaysia, 871, 872.
[Oil Palm], diseases of, 595; in Malaysia, 1638; Sabah, 596; book on, 1638.
— —, *Fomes noxius* on, in Malaysia, Sabah, 596.
— —, *Fusarium* on, incidence of, 3180.
— —, — *oxysporum* on, characteristics of, evaluation of fungicides against, 3532.
— —, — *solani* on, evaluation of fungicides against, 3532.
— —, *Ganoderma* on, in Malaysia, 871, 3 Sabah, 596; characteristics of, 595; con 595, 871, 3531; effect of, on mineral nu tion of, 2803.
— —, — *boninense*, *G. chalceum*, *G. minic inctum*, *G. tornatum*, *G. xylonides*, and *zonatum* on, morphology of, 1945.
— —, — *lucidum* on, in Malaysia, 872.
— —, *Glomerella* on, in Sabah, 596.
— — leaf diseases in Malaysia, review of, 3
— —, *Marasmius palmivorus* on, in Malay 871, 872; lack of adequate natural pollina in relation to, 596.
— —, *Melanconium* on, in Sabah, 596.
— — nutritional diseases in Sabah, 596.
— —, *Pythium* and *Rhizoctonia lamellifera* in Malaysia, 871.
— — spear rot in Malaysia, 872.
— —, stimulatory effect of on growth of *Fu rium oxysporum*, 2073.
— —, *Ustulina deusta* on, in Malaysia, 872
— —, virus-like symptoms in Sabah, 596.
Olea europaea, see Olive.
*Oleander (*Nerium oleander*), *Pseudomo tonelliana* on, in Germany, 1588.
Olive (*Olea europaea*), *Cycloconium oleagin* on, in France, 1745s; biology of, 174 control, 1745r, s, t, 2788; effect of, on yi factors affecting, morphology, and sympto of, 3515.
— diseases, 1745q.
—, *Pseudomonas savastanoi* on, control, 33 effect of, on, 2536.
Olpidium brassicae not transmitting tom bushy stunt virus, 1246.
— — on cabbage, 365.
— — on lettuce, 365, 3740.
— — transmitting tobacco necrosis vir 1374t, 2955, 3051; tobacco stunt virus, 10
— *cucurbitacearum* on cucumber, 3658.
Omadine against *Phytophthora capsici* *Capsicum*, 2949.
Omphalia pigmentata and *O. tralucida* on d palm, 1944.
Onion (*Allium cepa*), *Alternaria porri* on, Ivory Coast, 85; *Netherlands, 1b; Africa, 964; *U.S.S.R., 3066; control, 964; effect of, on yield, 964; of leaf wax germination of, 2931; factors affecting, 964; morphology of, 85; new race of, 9 symptoms of, 85, 964.
—, *Botrytis allii* on, biology of, 966; cont 380, 2339, 3289.
*—, — *byssoidea* on, in U.S.A., 87.
—, *Erwinia aroideae* and *E. carotovora* on, U.S.S.R., 2935.
*—, *Fusarium bulbigenum* on, in India, 683
—, — *equiseti* on, in Israel, 1466.
—, — *oxysporum* f.sp. *cepae* on, in Bra causing ' seven-curls ' disease, 2021.
*—, — — f.sp. *conglutinans* on, in India, 6
—, *Peronospora destructor* on, in Germa 2029; Greece, 708; Morocco, 2929; Pola 2956; S. Africa, 1357; changes in nuc

etabolism in, 2020; control, 709, 965, 1357, 029; effect of, on storage disorders, 1743u; n yield, 1743u; evaluation of fungicides gainst, 18; report on, 2956; severity of, 029.
nion], *Phytophthora porri* on, 1b; in *Netherlnds, 381.
Pseudomonas syringae on, 1530.
Puccinia graminis on, formation of appresoria by and germination of uredospores on pidermis of, 103.
Pyrenochaeta terrestris on, 2119; in Mauriius, spread of, 2930.
Sclerotinia squamosa on, 3611; *in Italy, 290; control, 2934; description of, 3290; actors affecting, 3612; severity of, 1b.
Sclerotium cepivorum on, 3611; control, 2933a; effect of volatile products from, on germination of sclerotia, 2932; technique for isolating, 2933b.
seed diseases, resistance to, 379.
storage disorders, 1743u, 3289.
, *Urocystis cepulae* on, in Hungary, eradication of, 980a; biochemical changes in, associated with resistance, 2340; control, 3649.
yellow dwarf virus on onion in Dardanelles, nematode associated with, 3647; transmission of mechanically by knives, 3288.
nobrychis sativa, bean yellow mosaic virus on, in Bulgaria, resistance to, 1460.
ospora pustulans on potato, see Potato.
virescens on mulberry, 745.
phiobolus graminis, effect of N level on survival in culture on cellulose, 1097.
— in soil, 1781, 2584n.
— on barley, 1375e, 3408.
— on cereals, see Cereals.
— on oats, 144, 1098a.
— on turf, 1592.
— on wheat, see Wheat.
pium poppy (*Papaver somniferum*), bean yellow mosaic virus on, in Bulgaria, 1460.
—, *Peronospora arborescens* on, control, 281.
ptical instruments, fungi on, evaluation of fungicides against, 997.
puntia virus, differentiation of, from tobacco mosaic virus and properties of, 1160.
range (*Citrus aurantium*, *C. nobilis*, *C. sinensis*, etc.), *Alternaria citri* on, control, 20321; epidemiology of, 195.
—, *Aspergillus fumigatus* on, in India, symptoms of, 2719.
, (?)boron deficiency in, in Iran, symptoms of, 3063d.
, *Botryodiplodia theobromae* on, effect of, on ascorbic acid content of, 2482.
, citrus crinkly leaf virus on, 2032m; protection conferred against citrus infectious variegation virus by, 2165a; reinfection of, by sub-cortical injections, 2165b; transmission of, to cowpea, 2032m.
, — exocortis virus on, in Japan, colour test for, 2165.
, — greening virus on, in India, 2167; S. Africa, 524; anatomy of, 3441; survey of, 524; symptoms and transmission of, by vectors, 2167.
, — 'impietratura' virus on, 1881; (?)in Iran, symptoms of, 3063d.
, — infectious variegation virus on, in Italy, 189; protection against citrus crinkly leaf virus conferred by, 2165a; reinfection of, by sub-cortical injections, 2165b; transmission of, by chip-bud grafting and sap, 189; to bean and cowpea, 189.
[Orange, citrus] stem pitting virus on, 1882; in Italy, 816.
—, — stubborn disease virus on, in Italy, 1880; symptoms of, 187.
—, — tristeza virus on, in India, 522; U.S.A., causing decline, 1124.
—, — variegation virus on, storage of, on *Antirrhinum* and *Petunia*, 2716.
— crinkle scurf, effect of, on yield, 1557.
—, *Diaporthe citri* and *Diplodia natalensis* on, mode of entry of, 3114.
—, *Fusarium stilboides* and *Glomerella cingulata* on, in India, 818.
—, *Guignardia citricarpa* on, control, 1127.
—, *Macrophomina phaseoli* on, in India, hosts and symptoms of, 196.
—, *Penicillium digitatum* on, control, 3442, 3443; role of wounds in infection by, 1129.
—, — *italicum* on, control, 3442; saltant forms of, 197.
—, *Sclerotinia sclerotiorum* on, in Italy, morphological characters and symptoms of, 525.
—, *Thielaviopsis basicola* on, symptoms of, 1884.
—, *Xanthomonas citri* on, in Argentina, 1556.
Orchid, tobacco mosaic virus on, differentiation of strs. of, 2738.
— viruses, 390m.
Organo-mercury, see Mercury compounds, organic.
Ornamentals, *Dahlia* mosaic virus on, cellular level of infection by, 2357e.
—, diseases of, in U.S.S.R., 2732.
—, *Erwinia carotovora* on, in Iran, 3315.
—, *Erysiphaceae* on, in Estonia, review of, 831.
—, *Fomes torulosus*, **F. t.* f.sp. *cercidis*, *Ganoderma applanatum*, **Polyporus hispidus*, and *Polystictus* on, in U.S.S.R., 1147.
—, *Rosellinia necatrix* on, in Iran, biology and hosts of, 3064.
—, *Stemphylium floridanum* on, in Canada, intercepted from abroad, 3346.
—, *Stereum hirsutum* on, in U.S.S.R., 1147.
—, turnip yellows virus on, effect of Al foil on transmission of, by vectors in the field, 395g.
—, virus diseases of, in Germany, review of work on, 2637.
Orobanche, *Verticillium* on, 478.
*Ortanique [*Citrus* hybrid], *Sphaeropsis tumefaciens* on, in Jamaica, 2958a.
Ortho 5871 against *Botrytis allii* on onion, 380.
Orthocide against *Blumeriella jaapii* on cherry, 3302c; *Botrytis cinerea* on grapevine, 3522; *Colletotrichum lagenarium* on cucumber, 971; *Coniella diplodiella* on grapevine, 1935; *Plasmopara viticola* on grapevine, 2791; as seed treatment for sorghum, 3098.
— injury to grapevine, 2791.
— 50 against *Botrytis cinerea* on strawberry, 3164; *Polystigma rubrum* on plum, 2528; *Sporidesmium sicynum* on fig, 1213.
— 50W against *Cycloconium oleaginum* on olive, 1745t.
— 75, resistance of *Pyricularia oryzae* to, 3105.
— — in combination against *Corticium solani* on broad bean, 3633.
— 83, effect of, on apple, 2031b.
— S.T.X. in combination against *Corticium solani* on broad bean, 3633.

Orthodifolatan against *Glomerella cingulata* on coffee, 3116.
— 80W against *Cylindrocladium scoparium* on spruce, 3243.
Ortho-LM in combination as seed treatment for groundnut, 2019.
Orthophaltan against *Alternaria tenuis* on tomato, 1294; *Botrytis cinerea* on grapevine, 2791, 3522; on strawberry, 3164; cyclamen root rot, 3133; *Fusarium oxysporum* f.sp. *gladioli* and *Penicillium gladioli* on *Gladiolus*, 1908; *Plasmopara viticola* on grapevine, 2791; as soil disinfectant, 1156.
Oryza sativa, see Rice.
Ostrinia nubilalis, relationship between susceptibility of oats to *Trichometasphaeria turcica* and, 1860.
Oxathiins, fungitoxicity of, 978b.
Oxycoccus macrocarpus and *O. palustris*, see Cranberry.
Oxygen deficiency, effect of, on growth and sporulation of fungi, 1173c.
Oxyphenyl-mercuric chloride as seed treatment for apple, 1377m.
Oxyquinoline sulphate, inhibition of *Typhula* on *Ficus pumila* by, 543.
8-oxyquinoline-tartrate, antifungal properties of, 3335.
Oxytetracycline in combination against *Pseudomonas lachrymans* on cucumber, 996; *Xanthomonas campestris* on cabbage, 996.
Oxythioquinox against *Botrytis fabae* on broad bean, 419; *Podosphaera leucotricha*, 2199.
Ozone, effect of, on bean, 373; on conidiophores and conidia of *Alternaria solani*, 2610; on *Penicillium digitatum* and *P. italicum* on citrus, 2483.
— injury to bean, 3702; to crops in U.S.A., 370; to plants in U.S.A., 780, 3700a, c; to spinach and tobacco, 3702.
— not causing pine needle blight, 926.

Pachybasium ?*candidum* on *Lentinus edodes*, 729.
Pachyrhizus bulbosus, *Phakopsora pachyrhizi* on, 1355.
Paecilomyces farinosus on insects, 1394.
Paeonia, see Peony.
Pancreatic ribonuclease, inactivation of cucumber mosaic virus Q str. by, 3388.
Panicum maximum, vectors of rice hoja blanca virus on, 1538.
— *miliaceum* bud wilt in Senegal, 1462.
— —, *Fusarium equiseti* on, in Israel, 1466.
— —, *Tolyposporium penicillariae* on, in Senegal, 1462.
*— *virgatum*, *Ustilago trebouxii* on, in U.S.A., 87.
Panogen against *Corticium solani* on cotton, 2597; as seed treatment for barley, 133; rye, 146; wheat, 133.
— in combination as seed treatment for groundnut, 2019.
— 15, resistance of *Pyricularia oryzae* to, 3105.
— metox as seed treatment for cereals, 1077.
— — versus Bayer 5660, 1077.
Pansy (*Viola tricolor*), *Aphanomyces euteiches* on, in W. Scotland, 1746d.
—, *Centrospora acerina* on, in U.S.A., symptoms of and transmission of, by (?)seed, 841.
—, *Pseudomonas* on, in Germany, symptoms of, 1161.
Papaver somniferum, see Opium poppy.
Papaw (*Carica papaya*) debility in Tanza aetiology of, 2785a.
—, delayed dithiocarbamate toxicity in, 3
— distortion mosaic virus on papaw in Ir resemblance of, to papaw mosaic vir Puerto Rico, 81.
— (—) ring spot virus, papaw faint m virus str. of and transmission of, by aph 2223.
—, *Fusarium solani* on, in India, symptom 3061.
—, *Macrophomina phaseoli* can infect, 19
— mosaic virus assigned to clover ye mosaic virus and potato virus X group, 2
— — — on papaw in Puerto Rico, resembl of to papaw distortion mosaic virus India, 81.
— 'pencil point' in Tanzania, 2785a.
—, *Rhizopus stolonifer* on, in India, sympt of, 3061.
— ring spot virus on papaw, infectivity 13811.
— 'small head' in Tanzania, 2785a.
— virus disease in E. Africa, spread, sympto and transmission of, by sap. 1379b.
— — diseases in Tanzania, causing debil 2785b.
Paper, micro-organisms on, effect of, on, 33 study on, 2988.
Paphiopedilum callosum, *Calonectria unisep* on, perfect state of *Cylindrocladium scc rium*, 2739.
**Papulospora byssina* on mushroom, 727.
Paraquat against *Cercosporella herpotricho* and *Ophiobolus graminis* on cereals, 1375
Paratanus exitiosus transmittting beet yel wilt virus, 2312.
Parathion against *Puccinia coronata* on o 2441; *P. graminis* and *P. recondita* on whe 2441; vectors of *Capnodium* and *Meliola* coffee, 1562.
— ineffective against *Puccinia graminis* on o 2441.
Paratoluene sulphonamide against *Sclerosp rayssiae* var. *zeae* and *S. sacchari* on ma 2705.
Parsley (*Petroselinum crispum*), *Cercosp punctum* on, 450.
—, *Pythium ultimum* on, factors affecting pearance of symptoms of, 714.
Parsnip (*Pastinaca sativa*), *Itersonilia pastina* on, in England, 1063b.
—, *Pyrenochaeta terrestris* on, 2119.
—, *Septoria pastinacae* on, in U.S.S.R., 1464
— yellow fleck virus, detection of, 1457.
— — — —, properties, purification and tra mission of, 3650.
— — — —, transmission of, in associat with *Anthriscus* yellows virus by vect 33011.
Parzate against *Alternaria solani* on pota 3186.
— C in combination versus cyprex, 1686; Ter, 1686.
PAS against *Cercospora sequoiae* on *Junipe scopulorum* and *J. virginiana*, 2862.
Pasomycin, effect of, on *Fomes tremu* 2388.
Passalora, re-definition of genus, 450.
Passiflora edulis, see Passion fruit.
Passion fruit (*Passiflora edulis*), *Alterna passiflorae* on, in Kenya, 2c.

'assion fruit], *Cylindrosporium* on, morphology and symptoms of, 1381a.
— woodiness virus on passion fruit, in Kenya, 2959b; Queensland, 270; hosts of and study on, 271.
stinaca sativa, see Parsnip.
aulownia witches' broom virus on *Paulownia*, structures in tissues infected by, 657.
CBA against *Pyricularia oryzae* on rice, 2160a.
, inhibition of *Pyricularia oryzae* on rice by, 2160b.
versus PMA, 2160a.
CNB, see Quintozene.
a (*Pisum sativum*), alfalfa mosaic virus on, 3626.
American streak virus on clover, 3484.
-, *Aphanomyces euteiches* on, in U.S.A., 393f; control, 393f, 1427; effect of pH on germination of oospores of, 2906; of *Pythium debaryanum* and *P. ultimum* in soil on, 1347.
aphids, use of entomophthorous fungi against, 737g.
-, *Ascochyta* on, control, 2905.
-, — *pinodella* on, epidemiology of, 1721; serological relationship of, with *A. pisi* and *Mycosphaerella pinodes*, 2320; soil as source of infection for and virulence of, 1721.
-, — *pisi* on, effect of light and UV light on, 24; serological relationship of, with *A. pinodella* and *Mycosphaerella pinodes*, 2320.
-, bean leaf roll virus on, transmission of, by vectors, 3630.
-, — yellow mosaic virus on, in Bulgaria, 1460; transmission of mechanically and by vectors, 3305h.
-, — — — — +lucerne mosaic virus on, interaction of, 775.
-, — — — — +*Pythium* on, in U.S.A., 952.
-, *Botrytis cinerea* on, factors affecting susceptibility to, 1348.
damping off, control, 41.
early browning virus on pea in *Belgium, 1713; Netherlands, 1059; ?new str. of, 1g; transmission of, by nematodes, 1059.
-, effect of *Penicillium purpurogenum* on respiratory enzymes in, 3360; of, on survival of *Typhula idahoensis* sclerotia in soil, 3409.
enation mosaic virus, latent period in vectors of, 2577.
— — — —, preparation and properties of protein and nucleic acid components of, 3627.
— — — — on broad bean, 3263.
— — — — on Leguminosae, 2317, 2318.
— — — — on pea in U.S.S.R., 693; control, 3264; epidemiology of, 3264; incidence of, 693; properties of, 3628; retention of, 370; transmission of, by vectors, 370, 1346, 3264, 3628.
— — — — on vetch, 693.
-, *Erysiphe polygoni* on, in Portugal, hosts of, 2003.
false leaf roll virus on pea, transmission of, by fungal zoospores, sap, seed and vectors, 1714.
-, *Fusarium* on, in Hong Kong, 3668b; control, 3265.
-, — *oxysporum* on, in Italy, *Heterodera gottingiana* associated with, 694a, c.
-, — — f.sp. *apii* can infect, 695.
-, — — f.sp. *pisi* on, in India, 2907; control, 951, 1718, 2907; effect of *Aphelenchus avenae* on pathogenic activity and survival of, 207b; of Ca deficiency on susceptibility of, to, 1g; factors affecting, 1716, 2004, 2907; physiologic races of, 1717; var. react. to, 2004.
[Pea, *Fusarium*] *poae* on, persistence of, in soil, 2321.
—, — *solani* f.sp. *pisi* on, in S. Australia, 2322; control, 1718; dissemination of, 2322; effect of UV light on, 2908.
—, — — f.sp. *pisi*+*Pythium* on, in U.S.A., 952.
— leaf roll virus on pea in U.S.S.R., incidence of, 693; epidemiology of, 3264; transmission of, by vectors, 3264, 3629.
— — — — on vetch, 693.
—, lucerne mosaic virus+bean yellow mosaic virus on, interaction of, 775.
— mosaic virus on Leguminosae, 2317, 2318, 3048.
— — — on clover, 239, 240.
— — — on pea, comparative transmission of, by different strs. of vectors, 1715; epidemiology of, 3264; relationship of, with vector, 2001; transmission of, by vectors, 3264.
— — —, resemblance of lupin virus in Hungary to, 1743b.
— — — +*Pythium* on pea in U.S.A., 952.
— — — stem browning str. on pea in N.Z. transmission of, by sap and vectors, 2904.
— mottle virus on Leguminosae, 2318.
—, *Mycosphaerella pinodes* on, in Czechoslovakia, 371; effect of light and UV light on, 24; epidemiology of, 1721; soil as source of infection, 1721; serological relationship of, with *Ascochyta pinodella* and *A. pisi*, 2320; virulence of, 1721.
—, *Oidium* on, in Hong Kong, 3668b.
-, *Pythium* on, control, 1718, 3265; relationship between seed exudates and pre-emergence mortality, 1720.
—, — +bean yellow mosaic virus, +pea mosaic virus, and +*Fusarium solani* f.sp. *pisi* on, 952.
—, — *debaryanum* on, in U.S.A., suceptibility to, 952.
*—, — *hydnosporum* on, in U.S.S.R., control and persistence of oospores of, in soil, 1719.
—, — *ultimum* on, in U.S.A., 952; effect of methyl dithiocarbamate on, 978c; of thiram residues in soil on, 41; susceptibility to, 952.
—, red clover vein mosaic virus on, 3626.
—, *Rhizoctonia* on, control, 3265.
—, *Sclerotinia fructicola* on, changes in phenylalanine metabolism associated with pisatin production in, 758; production of phytoalexin by, 1420, 3666t.
—, *Thielaviopsis basicola* on, 978n.
— Wisconsin streak virus on pea, 3626; inhibition of, by actidione and streptomycin, 2002.
Peach (*Prunus persica*), apple chlorotic leaf spot virus on, symptoms of, 2519.
—, — latent virus on, in N.S.W., symptoms of, 2032p.
—, cherry rasp leaf virus on, 1616.
—, — rosette disease on, (?)cucumber mosaic virus str. associated with, 3503.
— deficiency diseases, 396.
— disorder in U.S.A., symptoms of, 2768.
—, fungi on, list and review of, 247.
—, *Fusicoccum amygdali* on, biology of, 2213; effect of Cl and N nutrition on, 1202.
—, *Graphium persica* on, desiccation caused by, 2767.
— mosaic virus in U.S.A., comparison of plum pox virus with, 2210a.

[Peach mosaic virus]+apricot ring pox virus on apricot, 853.
—, plum pox virus on, in Switzerland, 1922, 2761b; control, 1922; symptoms of, 2761b, 2763; transmission of, to *Chenopodium foetidum*, 2357i.
—, *Prunus* necrotic ring spot virus on, in Japan, 2212.
—, *Pseudomonas syringae* on, 1530; effect of syringomycin on, 1203; production of antibiotic by, 1617; transmission of, by bud propagation, 261.
—, *Rhizopus stolonifer* on, 3694.
—, rose mottled mosaic virus on, mechanical transmission of, 2765.
—, *Sclerotinia fructicola* on, orchard evidence of direct penetration by, 259; sporulation of, compared with apple, 2201.
—, *Sphaerotheca pannosa* on, in Hungary, 1743d.
—, — — var. *persicae* on, changes in biochemical and physiological processes caused by, 260a; effect of, on intensity of respiration and enzymes, 260b.
— stem pitting in U.S.A., 3669c; symptoms of, 3499, 3669c; (?)virus causing, 3499, 3669c; var. react. to, 2764.
—, *Stereum purpureum* on, 396.
—, *Stigmina carpophila* on, in Kashmir, 2759; control, 396.
—, *Taphrina deformans* on, in Hungary, 1743e; Kashmir, 2759; control, 396, 1743e, 2529; factors affecting, 2529; var. react. to, 2529.
—, *Valsa* on, demonstration of contamination by, 258.
—, — *cincta* on, control, 575.
—, — *leucostoma* on, 2214; carbohydrate requirements of and factors affecting, 2214.
—, *Venturia cerasi* on, in Rumania, 577.
— virus disease on peach in Israel, similarity of, to peach yellows virus, 257.
— — diseases in Denmark, 730e; Hungary, 1743f; previously undescribed, 1743f; symptoms of, 730e; testing for, 246.
— wart virus on plum, 570.
—, *Xanthomonas pruni* on, factors affecting stomatal activity and susceptibility to, 3318.
— yellow bud mosaic virus on peach, hosts of and transmission of, by vectors, 571.
— yellows virus on peach, sources of infection for and transmission of, by vectors, 852.
Pear (*Pyrus communis*), *Alternaria kikuchiana* on, biosynthesis of altenin by, 1772.
*—, *Amphisphaeria pyrina* on, in U.S.S.R. 86.
— black-end and hard-end, ?relationship of yuzuhada disease of *Pyrus serotina* to, 2526.
— bud drop virus on in Bulgaria, 2523.
— decline virus on in U.S.A., 401d; (?)causing leaf curl disease, 401d, 1191; *Psylla pyricola* associated with leaf drop symptom of, 2755; recovery of virus from stored pollen of, 401e.
—, effect of fluorine on, 248.
—, *Elsinoe piri* on, first record of, in N. America, 2524.
—, *Erwinia amylovora* on, in England, 1604; Netherlands, 1d; Poland, 1919; breeding against, 3494; *Crataegus* as source of infection of, 1d; dissemination of, by wind, 1610; eradication of, 1919; var. react. to, 2525.
—, *Fabraea maculata* on, in Bulgaria, 1920; *Rhodesia, 2587a; control, factors affecting, and overwintering of, 3495; var. react. to, 1920.
[Pear], fungi on, metabolism of arbutin 2393; review of, 247.
*—, *Glonium pyricolum* on, in U.S.S.R., 8
—, *Gymnosporangium fuscum* on, in Bulg *Juniperus* as intermediate host for, 1920.
—, *Helminthosporium papulosum* on, in U.S symptoms of, 2590f.
— leaf curl disease associated with pear dec virus, 401d, 1191.
— mosaic virus symptoms resembling a chlorotic leaf spot and stem pitting vir 469.
—, *Mycosphaerella sentina* on, control, 160
— pollen virus, properties, purification, transmission of, 3493.
—, *Pseudomonas mors-prunorum* on, illustra of symptoms of, 2208.
—, — *syringae* on, control, 2757; distinct fr *P. mors-prunorum*, 1611; stability of, 2 uniformity of isolates, 1611.
— red mottle virus on pear in Bulgaria, 2 symptoms and transmission of, by vec 2756.
— ring pattern mosaic virus on pear in Bul 2523; symptoms of, 1178.
—, *Sclerotinia fructicola* on, sporulation compared with apple, 2201.
— stony pit virus symptoms resembling a chlorotic leaf spot and stem-pitting vi 469.
— storage disorders, review of, 2754.
— superficial scald, control, 1612.
— vein yellows virus on pear in Bulgaria, 2 symptoms of, 1178.
—, *Venturia pirina* on, in Bulgaria, 1920; c trol, 396.
— virus diseases, technique for obtaining pl free from, 249, 2191; testing for, 246.
— — — on *Chenopodium amaranticolor C. quinoa*, 469.
—, Oriental, see *Pyrus serotina*.
Pecan (*Carya pecan*), *Fusicladium effusum* in U.S.A., 1686; control, 3584.
—, *Microsphaera alni* on, in U.S.A., 1686.
—, *Pythium* on, causing feeder root necr 3225.
— shuck disease, symptoms of, 2278.
(?)*Pectobacterium parthenii* on *Dieffenbac* 3459d.
— — var. *dianthicola* on carnation, 3129.
Pedicularis ?*kingii*, *Puccinia bhutanensis* o Bhutan, 2622.
Pelargonium, culture of virus-free from st tips and callus, 3472.
— leaf curl virus, lyophilization of, 2104.
— — — and mosaic viruses on *Pelargon* diagnosis and symptoms of, 1162.
—, *Puccinia pelargonii-zonalis* on, in Hung 1743w; *Italy, 547; *Netherlands, 2 *U.S.A., 2506; aetiology of, 2505; con 2505, 2506; symptoms of, 2506.
— ring spot virus on *Pelargonium*, diagnosis symptoms of, 1162.
—, *Xanthomonas pelargonii* on, spec. react 842.
— yellow net virus on *Pelargonium* in Denm 730g.
Pellicularia koleroga on coffee, 3445.
**Peltosphaeria pustulans* on apple, 86.
Penicillin against *Xanthomonas phaseoli* bean, 397c.
—, inhibition of *Xanthomonas campestris* 1338.

nicillium brevicompactum on wheat straw, 2459.
canescens on spruce, 1326.
citrinum, primary luminescence of, 460.
claviforme on grapevine, 3523.
corymbiferum on flower bulbs in Germany, 333.
— on *Iris*, 2500.
cyclopium on hyacinth, 1374o.
— — on maize, 2358d, 2476.
— on spruce, 1326.
— +*Pseudomonas marginalis* on hyacinth, 1374o.
digitatum, longevity of, under oil, 3045.
—, metabolism of, in relation to ethylene biosynthesis, 3361.
— on citrus, 2483, 2717.
— on orange, 1129, 3442, 3443.
expansum on apple, 1188.
— on beet, stored, 2903.
— on cherry, 1925.
—, technique for determining sensitivity of, to heat, 2635.
frequentans on maize, 2476.
funiculosum in soil, 3447.
— on maize, 2476.
— on pineapple, 1631.
gladioli on *Gladiolus*, 1908.
glaucum, effect of, on plant respiration, 751.
herquei on maize, 2476.
implicatum as seed treatment for maize, 2475.
italicum on citrus, 2483, 2717.
— on orange, 197, 3442.
martensii on grapevine, 3523.
— on spruce, 1326.
multicolor on maize, 2476.
nigricans in rhizosphere of cotton, 3447.
notatum on tomato seed, 1302.
oxalicum on maize, 1525a, b, 3436.
purpurogenum on spruce, 1326.
—, primary luminescence of, 460.
restrictum, antagonism of antibiotic from *Rhizopogon roseolus* and *Tricholoma saponaceum* to, 1764.
roqueforti, primary luminescence of, 460.
rubrum on groundnut, 3645.
—, production of antibiotic by, 21.
rugulosum on maize, 2476.
steckii on wheat straw, 2459.
tardum, primary luminescence of, 460.
variabile on maize, 2476.
waksmanii in soil, 1318.
niophora near *P. pini* and *P. filamentosa* on timber, 2285.
gigantea on pine, see Pine.
mollis on timber, 932.
nnisetum purpureum stunting ?virus in Uganda, non-transmission of, by vectors, 1379c.
— *typhoides*, *Cercospora typhoides* on, symptoms of, 1531.
—, *Claviceps microcephala* on, in India, 980b; control, 1863.
—, *Colletotrichum graminicola* not infecting, 3099.
—, *Helminthosporium australiense* on, survival of, in soil, 1862.
—, — *setariae* on, effect of temp. on var. react. to, 165.
—, *Pseudomonas rubrilineans* not infecting, 804.
—, *Puccinia penniseti* on, effect of phyllosphere mycoflora on, 1113m.
[*Pennisetum typhoides*, *Puccinia*] *substriata* var. *penicilliarie* on, control, 1113n.
— —, *Sclerospora graminicola* on, in India, 1113p; effect of, on respiration of, 1533; epidemiology and host-parasite relationship of, 1113i; growth of, in tissue culture, 3100.
— *typhoideum*, *Microxyphiella hibiscifolia* on, in India, 3454.
Pentachloronitrobenzene, see Quintozene.
Pentachlorophenol, adaptation of *Cephaloascus fragrans* on timber to, 360.
—, against *Dothidella ulei* on *Hevea* rubber, 880e.
—, analytical methods for, 3326.
—, resistance of timber-decaying bacteria to, 930.
— in combination as timber preservative, 681, 3609.
Pentaene G8, biological activity of, 3338.
— —, inhibition of sunn-hemp mosaic and tobacco mosaic viruses by, 422.
— —, production of, by *Streptomyces anandi*, 422.
Pentatrichopus fragaefolii transmitting strawberry mottle virus, 395h; strawberry virus diseases, 394f.
Peony (*Paeonia*), *Botrytis cinerea* on, fungicidal properties of phytoncides of, 1148.
**Peperomia*, *Phytophthora nicotianae* var. *parasitica* on, 2507.
— and *P. sandersii*, *Phytophthora nicotianae* var. *parasitica* on, cultural and pathogenic variation in, 2657.
Pepper, black (*Piper nigrum*), (?)*Phytophthora hibernalis* on, in Jamaica, symptoms of and var. react. to, 2958b.
Peppermint (*Mentha piperita*), *Phoma menthae* on, inoculation and symptoms of, 401f.
—, *Puccinia menthae* on, control, 1220; effect of, on medicinal properties of, 3178.
Peregrinus maidis not transmitting *Pennisetum purpureum* stunting virus, 1379c.
— — transmitting maize mosaic virus, 1107; sorghum chlorosis virus, 3438.
Perenox against *Alternaria solani* on potato, 3186; *Mycosphaerella arachidis* on groundnut, 1356.
— injury to groundnut, 1356.
— versus CL–50, 3686.
Periconia circinata, chemistry and mode of action of toxin produced by, 1421.
— — on sorghum and wheat, 3030.
— *macrospinosa*, C.M.I. description of, 3030.
Peridermium cerebrum on pine, 1692.
— *filamentosum* on *Castilleja* and pine, 2287.
— *fusiforme* on pine, 1692.
— *harknessii* on pine, see Pine.
— *holwayi*, seasonal manifestation of *Puccinia-strum goeppertianum*, 448.
— *mexicanum*, *Cronartium conigenum* previously named, 2288.
— *ornamentale*, seasonal manifestation of *Pucciniastrum goeppertianum*, 448.
— *stalactiforme* on pine, 1986, 2287.
Peronospora antirrhini on *Antirrhinum majus*, 1809.
— *arborescens* on *Mecanopsis*, 1746d.
— — on opium poppy, 281.
— *aubretiae* on *Aubrietia deltoides*, 1809.
— *destructor* on onion, see Onion.
— *effusa*, see *P. farinosa*.
— *farinosa* on beet, see Beet.

[*Peronospora farinosa*] on *Beta*, *Chenopodium album*, and spinach, ff.sp. *betae*, *chenopodii*, and *spinaciae* proposed for, 1039.
— *jordanovii* on *Brassica jordanovii*, 1337.
*— *mesembryanthemi* on *Mesembryanthemum criniflorum*, 1063a.
— *parasitica* on *Brassica*, 3299a.
— — on cabbage, see Cabbage.
— — on cauliflower, 1375t.
— — on *Matthiola*, 2032d, *2737.
— —, ultrastructure of, 3375.
— *schachtii*, see *P. farinosa*.
— *tabacina*, effect of nature of cell walls of, on susceptibility of, to toxic compounds, 1380c; of phosphoric acid derivatives on, 1763.
— —, germination of conidia of, 2259.
— — on *Nicotiana exigua*, 1965.
— — on *N. plumbaginifolia*, 2258.
— — on tobacco, see Tobacco.
Peronosporaceae in Germany, survey of, 2080.
Perotzin against *Alternaria solani* on tomato, 2836; *Peronospora parasitica* on cabbage, 2896; *Phytophthora infestans* on tomato, 2836; *Pseudoperonospora cubensis* on cucumber, 970; *Septoria lycopersici* on tomato, 2836.
Peroxyacetyl nitrate, injury to plants, 780, 3700a, c, 3701.
Persea americana, see Avocado pear.
Persimmon (*Diospyros kaki* and *D. virginiana*), *Botrytis cinerea* on, control, 2786.
—, *Cephalosporium diospyri* on, in U.S.A., 1681.
—, *Phomopsis diospyri* on, control, 2786.
Pestalotia albomaculans, effect of gibberellic acid on growth and sporulation of, 3011.
— *bicolor* on *Annona squamosa*, 1629.
— *gracilis*, effect of light on growth and sporulation of, 752.
— *laurina* on *Laurus nobilis*, 2501.
— *longi-setula* on strawberry, 2780.
— *pauciseta* on *Litchi chinensis*, 864.
— *rhododendri*, morphogenetic effects of volatile organic compounds on, 3356.
*— *sapotae* on *Achras sapota*, 1064.
— *truncata* on apple, 1603.
— — on fruit, 1598.
Pestalotiopsis palmarum on coconut, 3528.
— *versicolor* on *Rhododendron*, 1374n.
Pestalozzina soraueriana on *Alopecurus pratensis*, 2743.
Pesticide handbook 'Entoma', 20th edition of, 2978.
Pesticides, analytical methods for, 3326.
—, dictionary of common names, revised list of, 3324.
Pests and diseases of introduced plants (Byelorussia), book on, 2366.
Petroleum growth substances as soil disinfectant, 612.
Petroselinum crispum, see Parsley.
Petunia as indicator for cherry destructive canker virus, 1177.
—, aster yellows virus on, structures in tissues infected by, 657.
—, citrus exocortis virus on, transmission of, by dodder, 523.
—, — infectious variegation virus on, storage of, on, 2716.
—, plum line pattern virus on, retention of infectivity by, 3156.
—, radish enation mosaic virus on, symptomless carrier of, 2309.
[*Petunia*] *hybrida*, cucumber green mottle mosaic virus can infect, 1736.
— —, tobacco mosaic virus str. on, in U.A.E., 2740.
Pezicula alba, effect of controlled atmosphere on growth of, 1187.
— — and *P. malicorticis* on apple, see Apple.
Pezizales of Australia, account of, in Herb. R.B.G., 3733.
PH 50–77 as seed treatment for pine, 3595b.
Phacelia, potato virus Y and tobacco etch virus can infect, 1455.
Phacidiella discolor on fruit, 1598.
Phacidiopycnis pseudotsugae on *Tsuga canadensis*, 675.
Phacidium abietis, hosts of, 338.
— *infestans* on pine, 1314.
— *taxicolum* on yew, 2884.
Phaeocryptopus gaeumannii and *P. nudus* on *Adelopus* needle-cast fungi named, 2283.
— *nudus*, *Rhizosphaera* resembling, 1313.
Phaeoseptoria eucalypti on *Eucalyptus*, 328.
— — on *E. bicostata*, 1308.
Phaeosphaeria eustoma on *Dieffenbachia* [illegible] in Germany, imported from U.S.A., 249
— *maydis* on maize, 113b.
Phakopsora gossypii on cotton, 3731a.
— *pachyrhizi*, hosts and physiologic races of, 1355.
Phalaris arundinacea, *Ascochyta brachypodii* on, in Germany, E., 2743.
Phaltan against *Botrytis cinerea* on grapevine, 3971, 3172; *Colletotrichum lagenarium* on cucumber, 971; *Deuterophoma tracheiphila* 1883b; *Lophodermium pinastri* on pine, 286; *Sclerotinia fructigena* and *S. laxa* on plum, 1615; *Septoria lycopersici* on tomato, 1377; *Taphrina deformans* on peach, 2529.
— in combination against *Sclerotinia minor* on radish, 2356d.
Phaseolus, *Phytophthora* on, virulence of, 365
—, tobacco ring spot virus on, correlation of decline of specific infectivity with nucleic acid degradation, 3562.
— *aureus*, *Alternaria tenuis* on, 3639.
— — as indicator for citrus viruses, 2165c.
— —, citrus crinkly leaf virus and citrus infectious variegation virus on, 2165c.
— —, *Corticium solani* on, changes associated with, 2008, 2332, 2917.
— —, cucumber mosaic virus on, peroxidase isozymes in, 2112.
— —, — — — str. on, 721.
— — diseases in Iran, 3262.
— —, *Pythium aphanidermatum* and *P. ultimum* on, factors affecting virulence of, 1351.
— *limensis*, *Cochliobolus carbonum* on, physiology of resistance of, 2333.
— *longipedunculatus*, ?*Abutilon* mosaic virus str. on, causing yellow mosaic, in Brazil, 1055.
— *lunatus*, cucumber mosaic virus on, factors affecting vector transmission of, 701a, b.
— —, *Phytophthora phaseoli* on, viability of, in storage, 3274.
— —, — — strs. A and B on, resistance to, 3273.
— —, *Uromyces appendiculatus* on, effect of temp. on, 3272; fungitoxins in wound sap of, 702.
— *mungo*, cucumber mosaic virus str. on, 72
*— —, *Isariopsis griseola* on, in Somalia, 70
*— — leaf crinkle ?virus in India, 2432.

aseolus] *vulgaris*, see Bean, French and Runner.
enotil against *Phytophthora infestans* on potato and tomato, 1398; *Plasmopara viticola*, 1398; *Venturia inaequalis*, 1398.
enoxy-γ-butyric acid derivatives against plant diseases, 1399.
enthiuram and phenthiuram molybdate as seed treatment for broad bean and *Cicer arietinum*, 1595.
enylazothioformamide, active principle in fungicidal action of 1-phenylthiosemicarbazide, 2984.
enyl N.N′-dimethyl phosphorodiamidate as seed treatment for wheat, 3074.
mercury acetate, see PMA.
— chloride, see PMC.
— compounds against *Pezicula alba* and *P. malicorticis* on apple, 1375 l.
— derivative of 8-hydroxyquinoline, effect of, on *Pseudomonas syringae* on pear, 2757.
— dimethyldithiocarbamate against *Venturia inaequalis*, 2198.
— nitrate as wound dressing, 3496.
phenyl-4-(3-pyridyl)-3-oxatricyclo [2.2.1.$0^{2,5}$] nonane (UC 23271), chemical and physical properties of, 1401.
phenyl-phenol esters against *Penicillium digitatum* on orange, 3443.
phenylthiosemicarbazide, effect on *Aspergillus niger*, phenyl azothioformamide active principle in, 2984.
henylthiourea, chemotherapeutic effect on *Cladosporium cucumerinum* on cucumber, 3666o.
Phialophora malorum on apple, 3152.
hleum alpinum, *Urocystis agropyri* on, subterranean sporulation by, 2184.
- *pratense*, *Heterosporium phlei* on, in Germany, 2743.
hlox as indicator for cherry destructive canker virus, 1177.
-, cucumber mosaic virus on, overwintering host of, 228.
-, *Pleospora herbarum* on, factors affecting and var. react. to, 229.
- *paniculata*, *Erysiphe cichoracearum* on, in Switzerland, 1809.
hlyctaena gossypii on cotton, 1573.
hoenix dactylifera, see Date palm.
hoiota adiposa on *Abies grandis*, 2858.
- *spectabilis* on *Acer saccharum*, 649.
homa alternariacea on tomato, 1303.
- *betae*, *Pleospora bjoerlingii* perfect state of, 948.
- *destructiva* on tomato, 1303.
- *eupyrena* on potato, 3301d.
- *exigua*, taxonomy of, 1442.
— on potato, 1245, 3545.
—, see also *P. foveata*.
— ff.sp. *exigua* and *foveata* in soil, 3546a.
— — — — — on potato, 3546a, b.
— var. *foveata* on potato, 1442, 3301d.
— — — proposed for *P. exigua* and *P. foveata* on potato, 1245.
— var. *linicola* on flax, 1442.
— var. *sambuci-nigrae* on elder, 1442.
foveata in soil, 3190.
— on potato, see Potato.
—, see also *P. exigua*.
glomerata, C.M.I. description of, 42.
- *herbarum* on *Murraya exotica*, 546.
— on poplar, 333.
[*Phoma herbarum*] var. *medicaginis*, germination of conidia and reproduction in, 2398.
— — — — on lucerne, 24, 1176, 1914.
— *insidiosa* on sorghum, 2154.
— *menthae* on peppermint, 401f.
— *oleracea* var. *helianthi-tuberosi* on sunflower, 1222.
— *prunicola*, C.M.I. description of, 42.
— *rostrupii* on carrot, 2936.
— *solanicola* in soil, 3190.
— — on *Capsicum*, 720.
— — on potato, 1376b.
— *spinaciae* on spinach, 3261.
— *tuberosa* on potato, 1246, 1247.
Phomopsis diospyri on persimmon, 2786.
— *lokoyae*, *Diaporthe lokoyae* perfect state of, 2571.
— *macrospora* on poplar, 332.
— *samararum* on ash, 325.
— *theae* on tea, 1268, 1961.
— *tuberivora* on potato, 2032c.
— *vexans* on eggplant, 388.
— *viticola* on grapevine, 2226, 2795.
Phoradendron flavescens, *Hymenochaete agglutinans* on, spread of, from oak, 2851.
Phorate against vectors of sesame viruses, 2800.
—, effect of, on *Verticillium alboatrum* on cotton, 2485.
Phosbutyl against *Verticillium dahliae* on cotton, and as seed treatment, 3120.
Phosphoric acids as fungicides, review of, 1762.
Phragmidium disciflorum on rose, 2366.
— *mucronatum* on rose, 1580.
— —, *P.* on *Agropyron smithii* and *Viola adunca* similar to, 91.
— *subcorticum* in Chile, factors affecting development of, 82.
— *tuberculatum* on rose, 1164.
Phthalan against *Elsinoe ampelina* on grapevine, 1634; *Plasmopara viticola*, 2792; *Septoria ribis* on gooseberry, 2772.
—, effect on *Erysiphe cichoracearum* on cucumber, 972.
Phycomycetes, baiting methods for isolation of, 2087c.
Phygon against *Botrytis cinerea* on persimmon, 2786; *Cylindrosporium maculans* on mulberry, 1630; *Didymella applanata* on raspberry, 3509; *Microsphaera alphitoides* on oak, 910; *Mycosphaerella fragariae* on strawberry, 2781; *Phomopsis diospyri* on persimmon, 2786; *Plasmopara viticola*, 2792; *Rhacodiella vitis* on grapevine, 1934; *Sphaerotheca pannosa* var. *rosae* on rose, 1164.
—, effect on *Erysiphe cichoracearum* on cucumber, 972.
Phyllachora, taxonomic monograph on, 452.
— *maydis* on maize, 2960a.
Phyllactinia corylea on almond, 2759.
— *dalbergiae* on *Dalbergia*, 3731b.
— *guttata* on hardwoods, 1035b.
Phyllosticta arachidicola-hypogaeae on groundnut, 2587c.
*— *argillacea* on *Rubus strigosus*, 87.
— *brunnea* on poplar, 2562b.
*— *cystopteridis* on *Cystopteris fragilis*, 87.
— *fraxini* on ash, 325.
— *gaillardiae* on *Calendula*, 2732.
— *gossypina* on cotton, 826.
*— *helianthi* on sunflower, 3066.
*— *ilicicola* on oak, 2414.
— *lauri* on *Laurus nobilis*, 2501.

[*Phyllosticta*] *prunicola* on plum, 2766.
— *rabiei* on *Cicer arietinum*, 375.
Phyllotreta striolata transmitting radish enation mosaic virus, 2309.
Phymatotrichum omnivorum in soil, 2491.
— — on cotton, 827.
— — on grapevine, 2789.
— —, production and germination of resting structures, 3354.
Physalis, *Corynebacterium michiganense* on, var. and spec. react. to, 1972.
— *floridana*, potato leaf roll virus on, 601.
— —, — spindle tuber virus on, symptoms of, 3395.
— *peruviana*, *Pseudomonas solanacearum* on, 280.
Physalospora miyabeana on *Salix*, 1746d.
— *obtusa* on apple, 1917, 2749.
— — on fruit, 1598.
— *rhodina* on cotton, 1575, 3122.
Physoderma maydis on maize, 3094.
— *trifolii* on clover, 240.
Physopella ampelopsidis on grapevine, 3731a.
— *zeae* on sorghum, 152b.
Phytoactin against *Valsa cincta* on plum, 1199.
—, effect on formation of mycorrhiza of pine, 1320; on *Rhabdocline pseudotsugae* on *Pseudotsuga menziesii*, 1325.
—, ineffective against *Cronartium comptoniae* and *C. quercuum* on pine, 3233; *C. ribicola* on pine, 1690.
—, properties and technique for assaying, 3340.
Phytoalexins, effect of O tension on production 1420.
— in pea, 3666t; soybean, 3666u.
—, role of, in resistance to fungal infection, 1007.
Phytobacteriomycin against *Pseudomonas glycinea* and *Xanthomonas phaseoli* var. *sojense* on soybean, 3637.
Phytopathologist's Handbook, revised and enlarged edition of Russian, 1387.
Phytopathology, Ann. Rev., Vol. 5, 986.
— in a hungry world, review article, 986q.
—, list of Dutch terms in, 2360.
—, practical guide, book on, 3311.
—, Rumanian treatise on, 987.
Phytophthora, homothallism, heterothallism, and interspecific hybridization in, 3742.
—, production of indole-lactic acid from tryptophan by, 2608.
—, relationship of C:N ratio to oospore production by, 1777.
— ? *arecae* on *Agave*, 1902.
— *cactorum*, effect of cholesterol and cholestanol on oospore formation in, 2399.
— — in soil, 2075.
— — on *Abies nobilis*, 2584p.
— — on apple, 1183, 1602.
— — on soybean, 2335, 3666u.
— *cambivora* on chestnut, 2274.
— *capsici*, control, 3611.
— — intraspecific matings of, 2083.
— —, light-cholesterol relationships in morphogenesis of, 1776.
— — on *Capsicum*, 2083, *2351, 2949.
— — on tomato, 2083.
— *cinnamomi*, distribution of, 92, 349.
— — in soil, 444, 1374c, 1430.
— — on avocado pear, 863.
— — on chestnut, 2274.
— — on *Erica*, 1374c.
— — on *Laurus nobilis*, 1586.
[*Phytophthora cinnamomi*] on *Rhododendron*, 1374n.
— — on *Vaccinium ashei* and *V. corymbosum*, 1207.
— —, physiology of chlamydospore germination, 3004.
— *citricola* on *Erica carnea*, 3941.
— — on hop, 1635.
— —, utilization of asparagine by, 2400.
— *citrophthora*, longevity under oil, 3045.
— — on citrus, 2032j.
— — on lime, 1885.
— —, technique for producing sporangia, 2636.
— *colocasiae* on *Colocasia esculenta*, 2028.
— *cryptogea*, effect of polyphenols on growth and sporulation, 29.
— — on *Gerbera*, 3459f.
— — on potato, 2550.
— *drechsleri* on *Capsicum*, 1221.
— — on safflower, 592, 3527.
— *erythroseptica*, electron microscopy of, 20
— — on potato, 2550, 3063a, 3717.
— — on raspberry, 1623.
— — on tomato, 2560.
— *fragariae*, differentiation of races, 259, 2778, 2779.
— —, morphology of zoospores, 2085.
— — on strawberry, see Strawberry.
— —, storage in liquid N, 2365.
— *heveae* on cacao, 3060b.
— —, utilization of asparagine by, 2400.
— ?*hibernalis* on black pepper, 2958b.
— *infestans* as test fungus, 3699.
— —, composition of DNA from, 2401.
— —, cultural variability in, 2628.
— —, effect of phosphoric acid derivatives, 1763.
— —, factors affecting growth of, 2586b.
— — on potato, see Potato.
— — on tomato, see Tomato.
— —, properties and virulence of, 292.
— —, ultrastructure of sporangia, 2810.
— *lateralis* on *Chamaecyparis lawsoniana*, 34
— (?)*meadii* on *Hevea* rubber, 2822, 3549c
*— *megasperma* on lucerne, 243.
— — on soybean, 2335, 3666u.
— — var. *sojae*, asexual reproduction and behaviour of zoospores, in relation to roots, 9
— — — —, morphology of zoospores, 2084, 2085.
— — — —, on soybean, 2335, 3666u.
— *nicotianae* in relation to *Aphelenchoides c posticola* and *Ditylenchus myceliopha* 2077.
— — on *Agave*, 1901, 1902.
— — on *Nicotiana plumbaginifolia*, 889.
— — on sesame, 3063b.
— — on tobacco, 316, 889, 890.
— — var. *parasitica*, effect of bean exudates 755.
— — — —, hosts of, 2657.
— — — — in soil, 1431, 1943.
— — — —, longevity under oil, 3045.
— — — — on *Annona squamosa*, 2656.
— — — — on box, 834.
*— — — — on *Capsicum*, 2588a.
— — — — on citrus, 192, 3063b.
— — — — on *Hibiscus cannabinus*, 3456.
*— — — — on *Peperomia*, 2507.
— — — — on *Piper betle*, 1943.
— — — — ultrastructural changes du zoospore formation, 770.

ytophthora] *palmivora*, effect of leaf respiration on zoospores, 3005.
—, light-cholesterol relationships in morphogenesis of, 1776.
—, nutritional requirements for enzyme production by, 2402.
— on *Achras sapota*, 2656.
— on *Hevea* rubber, 880b, (?)2822.
?— on pineapple, 1931.
—, production of α-L-arabinofuranosidase by, 3718.
phaseoli on *Phaseolus lunatus*, 3273, 3274.
porri on onion, 1b, *381.
rtotoxins and toxaemia, review of, 2391.
ea, see Spruce.
sma quadratum transmitting beet leaf curl virus, 395f.
zodorus pallescens, ?relationship of, to date palm decline, 285.
geon pea (*Cajanus cajan*), fungi in India, causing wilt, 2432.
—, *Fusarium udum* on, effect of S on sporulation, 374.
— mosaic virus on pigeon pea in India, symptoms and transmission by grafting, 81.
— — yellows, ?virus, in India, 2432.
nento (*Pimenta officinalis*), cucumber mosaic virus on, genetics of resistance to, 1745h.
, *Puccinia psidii* on, in Jamaica, 2958b.
, tobacco mosaic virus on, genetics of resistance to, 1745h.
ne (*Pinus*), *Arceuthobium americanum* on, *Glomerella cingulata* parasitizing in Canada, 337.
–, *Armillaria mellea* on, in Jamaica, 2958a; antagonism of fungi to, 90.
–, *Bifusella linearis* on, in U.S.A., causing needle cast, 2867.
, *Boletus granulatus* on, forming mycorrhiza, 2603.
, — *luteus* on, forming mycorrhiza, 424.
, *Botryosphaeria ribis* on, in E. Africa, 344.
, *Caliciopsis pinea* on, in France, 345, 3238; mode of entry, 345.
, *Cenangium ferruginosum* on, *Thecodiplosis brachyatera* associated with, 346.
, *Ceratocystis montii* on, inhibition of, by extracts from, 3252.
–, *Cercospora pini-densiflora* on, in Rhodesia, 2359a.
, *Cladosporium* in rhizosphere of, 2284.
, *Cochliobolus geniculatus* on, in E. Africa, causing damping-off, 2863b.
Coleosporium asterum on, in U.S.A., life cycle and development of, 3235.
— *paederiae* on, life history and morphology of, 2286, 3236.
Colletotrichum on, in N.Z., causing terminal crook disease, 919b.
Coniophora puteana on, biology of, 1702.
Corticium solani on, in E. Africa, 2863a, b; effect of soil mycoflora on, 1318; inhibition of, by mycorrhizal basidiomycetes, 1411; virulence of, 2863b.
?*Corynebacterium* sp. on, in W. Mediterranean area, 3601.
Cronartium on, in Mexico and U.S.A., aecial states of, 1692.
— *appalachianum* on, 1986.
— *comandrae* on, in U.S.A., determining age of, 2872; effect of, on, 1986.
[Pine, *Cronartium*] *comptoniae* on, in Canada, 1315; effect of antibiotics on, 3233; histology of, 1986.
—, — *conigenum* on, in British Honduras, 1982; geographical distribution of, 2288; previously named *Peridermium mexicanum*, 2288.
—, — *flaccidum* on, in Europe, cytology and morphology of aeciospores, 3598.
—, — *fusiforme* on, in U.S.A., 2869; control, 3599; distance of needle infection from stem and gall development, 3600; factors affecting, 2869; pathogenicity of basidiospores, 2870; physiochemical basis of gall formation in, 3234; resistance to, 1987.
—, — *occidentale* on, 1986.
—, — *quercuum* on, 2290; in Canada, now identified as *Peridermium harknessii*, 2868; U.S.A., distinction from *P. harknessii*, 3232; effect of antibiotics on, 3233.
—, — *ribicola* on, in U.S.A., 2569, *2871, 2872; U.S.S.R., 1691; control, 1690; culture of, 1323; determining age of, 2872; factors affecting, 1691, 2569; spread of, 734; *Tuberculina maxima* parasitizing, 2289.
—, *Crumenula pinicola* on, in Netherlands and abroad, review of, 2874.
—, — *sororia* on, in Netherlands and abroad, 2874; biology of, 3219c; review of, 2874.
—, *Curvularia* on, in E. Africa, causing damping-off, 2863a, b.
— damping-off in Canada, 341; E. Africa, 1983, 2863a, b; Tanzania and Uganda, 3595a, b; control, 3595a; evaluation of fungicides against, 341; factors affecting, 1983.
—, *Davisomycella ampla* on, in Canada, 2562b.
—, — *fragilis* on, in Canada, previously confused with *Lophodermium pinastri*, 347.
— dieback, *Scleroderris lagerbergii* associated with, 1324.
—, *Diplodia pinea* on, in U.S.A., 2271e, 2873.
—, *Dothistroma pini* var. *keniensis* on, in Kenya, 1984.
—, effect of captan-50W on seed germination, 2857; of H_2O_2 on seed germination, 1980; of chemicals on pollen germination, 342.
—, *Europhium* on, inhibition of, 3252.
—, *Fomes annosus* on, in Latvia, 2292; U.K., 3219; U.S.A., 3230, 3603; antagonism of *Trichoderma* spp. in soil to, 348a; duration of stump susceptibility to, 3230; effect of resin on resistance to, 3229; epiphytic growth of, 348a; factors affecting, 2291, 2292; new host of, 3603; resistance of stem sap to infection, 666; susceptibility to, 348b, 1330, 3219; technique for studying, 3229.
—, — *fomentarius* on, biology and control of, 1702.
—, — *pini* on, rate of decay in, 667.
—, frost injury to, in Canada, breeding against, 2878.
—, fungal decay of, in Canada, 924.
—, fungi on, in E. Africa, 2863a, b; bibliography of, 343; causing damping-off, 2863a, b; in litter of, 1020, 3219b.
—, *Fusarium* in rhizosphere of, 2284.
—, — on, in Chile, 3594; E. Africa, 2863a, b; control, 1319, 2293, 3594; factors affecting, 3593.
—, — *oxysporum* on, in E. Africa, 2863b;

U.S.A., decline of, 923; effect of soil mycoflora on, 1318.
[Pine, *Fusarium*] *solani* on, in E. Africa, 2863b.
—, *Hebeloma mesophaeum* on, forming mycorrhiza, 425.
—, *Hypodermella ampla* on, defoliation caused by, 643c.
—, *Laccaria laccata* on, forming mycorrhiza, 425.
—, *Lophodermium nitens* on, comparison with *L. pinastri*, 2864.
—, — *pinastri* on, in *Canada, 2562b; Czechoslovakia, 2865; Germany, 922; U.S.A., 2590h; U.S.S.R., 1314, 2866; comparison with *L. nitens*, 2864; control, 669, 2865, 2866; development of, 2590h; factors affecting, 922; inoculation with, 2294.
—, *Macrophomina phaseoli* on, effect of soil disinfection on, 355.
—, *Melampsora populnea* on, effect of extracts on growth of, 3231.
—, mycorrhiza of, 3708; in Italy, 3709; U.S.S.R., 1001; development of, 3711; effect of phytoactin on, 1320; of simazine on, 749; electron microscopy of, 1002; factors affecting, 2991, 2992; morphology of, 3711; types of, 2390.
—, *Naemocyclus niveus* on, spore discharge of, 349.
— needle blight in Canada, ozone not causing, 926; U.S.A., air pollution causing, 925.
—, — chlorosis in Germany, associated with iron deficiency, 2298.
— '— curl' not associated with soil moisture, 670.
—, *Penicillium* in rhizosphere of, 2284.
—, *Peniophora gigantea* on, in U.S.A., inhibition of *Fomes annosus* by, 3230.
—, *Peridermium cerebrum* on, in Mexico and U.S.A., differentiation from *P. fusiforme* and *P. harknessii*, 1692.
—, — *filamentosum* on, races of, 2287.
—, — *fusiforme* on, in Mexico and U.S.A., differentiation from *P. cerebrum*, 1692.
—, — *harknessii* on, in Canada, 1315, 2562a, 2868, 3597; Mexico, 1692; New Zealand, 1693; U.S.A., 1692, 3232; control, 2868; differentiation from *Cronartium quercuum*, 2562a, 3232; from *P. cerebrum*, 1692; identification of, 3597; susceptibility to, 1693.
—, — *stalactiforme* on, 1986, 2287.
—, *Pestalotia* on, in Malaysia, 3239.
—, *Phacidium abietis* on, 338.
—, — *infestans* on, in U.S.S.R., 1314.
—, pine-oak rust on, in U.S.A., differentiation from *Cronartium fusiforme* and *C. quercuum*, 2290.
—, *Polyporus circinatus* on, in Germany and Poland, incidence of, 2295.
—, — *tomentosus* on, in Germany, 3602.
—, *Pythium acanthicum* on, in E. Africa, 2863b.
—, — *afertile* on, effect of seed exudates on, 3596.
—, *Rhizina undulata* on, in *Rhodesia, 3a; heat from fires and ascospore germination, 350b.
—, *Rhizoctonia* on, control, 1319.
— root rots in U.S.S.R., 673.
*—, *Scirrhia pini* on, in Canada, *643d; E. Africa, 920; England, 3219; *France, 352; New Zealand, 351, 919c, 3237; control, 351, 919c, 920; distribution of, 351; *Dothistroma pini* conidial state of, 352; effect of shade on incidence of, 668; of, on tree size, 919c; h list for, 3237; infection of, 919c, 1985; sp react. to, 351, 919c, 1321.
[Pine, *Scirrhia pini*] var. *linearis* on, 1984.
—, *Scleroderris lagerbergii* on, in *Austr 2877; Canada, 643c, 2878; Germany, 2 U.S.A., 1694; biology of, 2875; breed against, 2878; causing dieback, 1324, 2 2877; factors affecting, 1324, 2296; spor tion of, 2879; infection by, 643c; susce bility to, 1694, 2876.
*—, *Sclerophoma pithyophila* on, in Can 2562f.
—, *Thelephora terrestris* on, forming myc rhiza, 425.
—, *Trichoderma viride* on, in U.S.A., 3230.
—, *Tuber albidum* on, forming mycorrhiza, Italy, 3709.
—, — *maculatum* on, forming mycorrhi 3708.
—, *Veluticeps berkeleyi* on, in C. Amer Cuba, and U.S.A., 2297; *V. fusca* syno of, 2297.
—, *Verticicladiella wageneri* on, effect of te on, 353; pathogenicity of, 354.
Pineapple (*Ananas comosus*), *Ceratocy paradoxa* on, control, 3513.
—, *Colletotrichum* on, in India, 2787.
*—, *Penicillium funiculosum* on, in Haw 1631.
—, *Phytophthora ?palmivora* on, in Iv Coast, 1931.
Pinus, see Pine.
Piper betle, *Phytophthora nicotianae* var. *pa sitica* on, survival of, in soil, 1943.
— *nigrum*, see Pepper, black.
Piricularia, see *Pyricularia*.
Pisum sativum, see Pea.
Plant diseases in Angola, 3400; Canada, 36 Czechoslovakia, 1787; Finland, 13 Guinea, 1750; Hawaii, 1067; Hungary, 39 1404; Iran, 2114, 3063; Iraq, 3062; Jamai 1066; Madagascar, 3065; Mauritius, 10 1806; Nepal, 1069; N. Korea, 477; Pola 1071; Tasmania, 3399; Venezuela, 1381c, W. Australia, 3398; Yemeni Arab Repub 1068; Zambia, 84; assessment of, 33 biochemistry and physiology of, book 989; biological control of, 1749; contr 393c, 1396, 1397, 1398, 1399, 1404, 18 2116, 2430; economics of, 1374a; control environment in relation to research on, 98 effect of tillage on, 2653; host-parasite re tionships in, 731; insects in relation to, 2 edition of book on, 1386; mathemati analysis of epidemics of, 1750, 2035, 23 3671; method for predicting, 1073; ? my plasmas causing, 3672; nocturnal sp dissemination in spread of, 734; relationsh of centres of origin to sources of resista to, 3068; resistance to, substances induci 16; toxins and, 1421.
— galls, pocket encyclopaedia of, 3313.
— immunity, classification of and review Russian literature on, 2963.
— pathology, chronology of, book on, 25 C.M.I. handbook on, 2971; Czechoslo forestry bibliography of, 1679; developm of, in Britain, 3670; in Denmark, 2962; fi trials, problems in, 475; introductory, edition, revised, of book on, 1751; my logical techniques in, 3379; the plant pat logist and, 986a; review of 1946–66, 4

)urcebook of laboratory exercises in, 10;
chniques in, 3379.
nt] protection in Austria, 1759, 1760;
ermany, 415, 1409, 3704; Japan, 1070;
oland, 2957; S.E. Asia and Pacific Region,
000; U.S.S.R., 1382, 1383, 1463; approved
ppliances for, 415; index 1945–1966, FAO,
748; practical treatise on, 735; problems
ssociated with, 732.
viruses, 4th edition of Smith's book on, 2098.
ntago, tobacco rattle virus on, in Czecho-
lovakia, 1374s, 1804.
media, tobacco mosaic virus ribgrass str. on,
n Czechoslovakia, cell inclusions in, 1802.
ntasol against *Pseudomonas delphinii*, 542.
nts, Dictionary of economic, 2368.
ntvax as soil disinfectant, 1852.
effect of, on *Entyloma oryzae* and *Tilletia*
barclayana, 1539.
ismodiophora brassicae, fine structure of, in
porogenesis, 771.
— on Brassicae, 730b, 2030.
— on cabbage, see Cabbage.
— on cauliflower, 937.
— on Cruciferae, 3255, 3617.
— on kale, 937.
— on rape, 938.
ismopara halstedii on sunflower, see Sun-
flower.
viticola on grapevine, see Grapevine.
astics, testing for resistance to fungi, 998.
leomassaria mali on apple, 86.
muriformis on fruit, 1598.
eomela, Gibberella fujikuroi on, symptoms of,
1584.
eospora bjoerlingii on beet, see Beet.
herbarum, C.M.I. description of, 1035a.
—, distinction of *Stemphylium botryosum*
f.sp. *capsicum* from, 3659.
—, interaction of near-UV light and temp.
on sporulation of, 1017.
— on apple, 2752.
— on ash, 325.
— on lucerne, 1176, 1594.
— on *Phlox*, 229.
—, photosporogenesis in, 3723.
mali on fruit, 1598.
eurotus gemmellari on poplar, 333.
ostreatus, effect of light on growth and
sporulation of, 752.
— on timber, 1991.
icaria fulva on mushroom, 1741.
um (*Prunus domestica*), cherry chlorotic-
necrotic ring spot virus str. on, hosts, pro-
perties, and transmission of, 255.
, *Diaporthe perniciosa* on, in Sweden, 2527;
epidemiology of, 1201.
, *Dibotryon morbosum* on, germination of
ascospores of, 573.
dwarf virus, control and symptoms of,
1178.
, effect of fluorine on, 248.
line pattern virus, comparison of, other
viruses with, 2210a, 2651, 3156.
— — —, hosts of, 254.
— — —, serology of, 2651.
, *Nectria cinnabarina* on, in Germany (N.),
1181.
, peach wart virus on, symptoms of, 570.
, — yellow bud mosaic virus on, transmission
of, by vectors, 571.
, *Phyllosticta prunicola* on, symptoms of,
2766.
[Plum], *Polystigma rubrum* on, in Rumania, 393f;
U.S.S.R., 2192; biology of, 2192; control,
393f, 1200, 2192, 2528; *Gloeosporium poly-
stigmicola* parasitizing, 563; incidence of,
2192; potential infection in stromata of,
2211; spray warning for, 1916.
— pox virus can infect *Prunus cerasifera* var.
divaricata, 1196.
— — — on apricot, 1196, 1922, *3059a.
— — — on greengage, 2357i.
— — — on peach, 1922, 2357i.
— — — on plum in Bulgaria, 2100; England,
2763; Switzerland, 1922, 2761a, b; U.S.S.R.,
558, 1196; Yugoslavia, 569, 2762; compari-
son with other viruses in U.S.A., 2210a;
control, 1178, 1922; eradication of, from
Germany, 2355h; hosts of, 2761b, 2763;
identification of, 2763; report on, 2760; re-
view of, 2210b; spread of, 569; symptoms of,
1178, 2761b; transmission of, by vectors,
569, 1614, 2761a, 2762; to *Chenopodium
foetidum*, 2357i; var. react. to, 2762.
— — — +*Prunus* necrotic ring spot virus on
plum, 1377l.
—, *Prunus* necrotic ring spot virus on, serolo-
gical demonstration of, 568.
—, — — — — — — +plum pox virus on,
1377l.
—, *Pseudomonas syringae* on, 1530.
— 'rosette' virus in U.S.S.R., description,
incidence, and symptoms of, 558.
—, *Sclerotinia fructigena* and *S. laxa* on,
biology of, 1615.
—, *Stereum purpureum* on, effect of asphyxi-
ation of roots on, 1923.
— storage disorders, factors affecting, 1005.
—, *Valsa cincta* on, control, 256, 1199, 3498;
resistance induced by, 574.
— virus diseases in Hungary, 1743f; testing for,
246.
**Plumeria acutifolia, Glomerella cingulata* on,
548.
Pluteus, effect of, on coniferous litter microflora,
2282.
PMA against *Corynebacterium michiganense* on
tomato, 2843; *Pyricularia oryzae*, 1541;
Tilletia foetida on wheat, 1839; *Ustilago
avenae* on oats, 1511; *Xanthomonas vesica-
toria* on tomato, 2843.
— versus duter 50–W, 1541; PCBA, 2160a.
— in combination against *Pyricularia oryzae*,
2160a.
PMC against *Botrytis fabae* on broad bean, 419;
Sporidesmium sicynum on fig, 1213; *Strepto-
myces scabies* on potato, 1377g; *Venturia
inaequalis*, 250, 3491; *Xanthomonas phaseoli*
on bean, 1377h.
— injury to apple, 250.
— in combination against *Colletotrichum* on
pine, 919b.
Poa annua, Arabis mosaic virus on, trans-
mission of, 3508.
— — virus in Czechoslovakia, symptoms of,
and transmission, by vectors, 2510.
*— —, wheat mosaic virus on, in Japan, *Poly-
myxa graminis* associated with, 1822.
— *pratensis*, barley yellow dwarf virus on, in
Denmark, 730b.
— —, *Claviceps purpurea* on, in Germany,
1170; control, 2509; incidence of, 1170.
— —, *Erysiphe graminis* on, control, 2509.
— —, *Helminthosporium vagans* on, in Ger-
many (E.), 2743; U.S.A., 235; control and

factors affecting, 3479; inflorescence infection by, 235.
[*Poa pratensis*] *Puccinia striiformis* and *Septoria macropoda* var. *septulata* on, control, 2509.
— —, *Urocystis agropyri* on, control, 2509; symptoms of, identical with *Ustilago striiformis*, 3477.
— —, *Ustilago striiformis* on, control, 2509, 3478; subterranean sporulation by, 2184; symptoms of, identical with *Urocystis agropyri*, 3477.
Podosphaera leucotricha in the air, 2032o, 2355d.
— — on apple, see Apple.
— *oxyacanthae* var. *tridactyla* on damson, 1809.
— — on Rosaceae, 3731b.
Pollaccia radiosa imperfect state of *Venturia tremulae*, 1309.
Polyantibiotic against *Pythium ultimum* on parsley, 714.
Polybarint against *Taphrina deformans* on peach, 2529.
Polycarbacide against *Elsinoe ampelina* on grapevine, 1634.
Polycarbacin against *Cylindrosporium maculans* on mulberry, 1630; *Elsinoe ampelina* on grapevine, 3171; *Phytophthora infestans* on potato, 1396; on tomato, 1677; *Plasmopara viticola*, 1396; *Venturia inaequalis*, 1396.
Polyethylene polysulphide, use of, on coffee, 2960d.
Polygonum aviculare, *P. pennsylvanicum*, and *P. persicaria*, *Cercospora beticola* on, 2314.
Polymycin against *Pseudomonas glycinea* and *Xanthomonas phaseoli* var. *sojense* on soybean, 3637.
Polymyxa betae on beet, 949, 1345b.
— *graminis* associated with wheat mosaic virus on *Poa annua*, 1822.
— —, differentiation of *P. betae* on beet from, 1345b.
— — transmitting wheat (soil-borne) mosaic virus, 101, 1080.
Polyporaceae in Denmark, Finland, Norway, and Sweden, 1438; U.S.S.R., 2416; description of and key to, 1438.
— on apricot, 1205.
—, production of antibiotics by, 3337.
Polyporus adustus on timber, 2891.
— — on wood pulp, 936.
— *anceps* on timber, 2271b.
— *betulinus* on birch, 3248.
— *brumalis*, inhibition of, by KCN, 36.
— *circinatus* on pine, 2295.
— *gilvus* on *Casuarina equisetifolia*, 3580.
— *glomeratus* on *Acer saccharum*, 649, 1973, 2566.
— *hirsutus*, effect of apricot apoplexy tannins on growth of, 1205.
*— *hispidus* on ornamentals, 1147.
— — on trees, 1994.
— *megaloporus* on timber, 1331.
— *populinus*, production of antiblastic substance by, 2403.
— *squamosus* on trees, 1994.
— *sulphureus* on timber, 1993.
— — on trees, 1994.
— *tomentosus* on pine, 3602.
— — on spruce, 928, 1315, 3244.
— — var. *circinatus* on spruce, 1315.
Polyram against *Plasmopara viticola* on grapevine, 2791; *Venturia inaequalis*, 4a.
[Polyram] versus cyprex, 1686; Du-Ter, 168
— C against *Helminthosporium heveae* *Hevea* rubber, 1256.
— M against *Helminthosporium heveae* *Hevea* rubber, 1256; *Phytophthora infes* on potato, 1236, 2961.
— combi against *Alternaria tenuis* on to 1294; *Botrytis cinerea* on grapevine, 397 strawberry, 3164; *Fusarium* on *Dieffenba* 3459d; *Phytophthora infestans* on pot 2240.
— turf fungicide against *Sclerotinia hom carpa* on *Agrostis palustris* and *A. te* 2744.
— — — injury to turf, 2744.
Polyspora lini on flax, see Flax.
Polystictus abietinus, distinction between f of, 50.
— *cinnabarinus* on stone fruit, 1613.
— *hirsutus* on trees, 1994.
— *sanguineus* on timber, 2285.
— *versicolor*, effect of apricot apoplexy ta on growth of, 1205.
— — on stone fruit, 1613.
— — on timber, see Timber.
— — on trees, 1994.
— — on wood pulp, 936.
Polystigma rubrum on almond, 576.
— — on plum, see Plum.
Pomarsol 'zet' against *Plasmodiophora bras* on cabbage, 2307.
— Z forte against *Polystigma rubrum* plum, 2528.
Pome fruit diseases in Germany, causing b and wood injury, 848.
— —, *Pseudomonas syringae* on, in U.S.S 2209.
— —, *Stereum purpureum* on, 396.
— — virus diseases, development and sy toms of, 2747.
Poncirus trifoliata, *Thielaviopsis basicola* symptoms of, 1884.
*Poplar (*Populus*) [see also Aspen], *Alterna tenuis* on, in Portugal, 2414.
—, *Aplanobacter populi* on, in France, 32 pathogenicity of, 2854; review of, by Poplar Commission Versailles, 334; spr of, 3227; symptoms of, 2854; transmissio by vectors, 3227; var. react. to, 661, 322
—, *Cladosporium herbarum* on, in Pakis 333.
—, *Chromobacterium* on, in Czechoslova 2854.
—, *Cytosporina acharii* on, nematode paras ing, 1393.
—, *Diplodia tumefaciens* on, in Canada, 25
—, *Erwinia cancerogena* on, in Czechoslova pathogenicity and symptoms of, 2854.
—, — *multivora* on, in U.S.S.R., aetiology 1311.
*—, *Fusarium solani* on, in U.S.A., (Iowa),
—, *Hypomyces solani* on, pathogenicity of,
—, *Marssonina* on, control, 3302c.
—, — *brunnea* on, in Hungary, 3585; It 2853; *U.K., 3219.
—, — *populi* on, genetics of, 2031g.
—, — — - *nigrae* on, in U.K., 3219.
—, *Melampsora allii-populina* on, distinctio from *M. larici-populina*, 912.
—, — *larici-populina* on, 912; breeding aga 660; distinction of, from *M. allii-popul* 912; temp. and susceptibility to, 1689.
—, — *medusae* on, in U.S.A., 1310.

plar, *Melampsora*] *populnea* on, in Pakistan, 33.
nosaic virus on poplar in Canada, similarity f, to European str., 2567; effect of, on rowth, 3219d.
Phoma herbarum on, in Pakistan, 333.
Phomopsis macrospora on, pathogenicity of, 32.
Phyllosticta brunnea on, in Canada, 2562b.
Pleurotus gemmellari on, in Pakistan, 333.
Pseudomonas syringae on, in Czechoslovakia, virulence of, 2854.
Torula herbarum on, in Pakistan, 333.
Uncinula salicis on, in Canada, 2562d, '2562e.
Valsa on, 3303.
— *sordida* on, fungi associated with, 915; pathogenicity of, 332.
Venturia tremulae on, biology of, 1309; *Pollaccia radiosa* imperfect state of, 1309.
pulus grandidentata, see Aspen.
tremula and *P. tremuloides*, see Aspen.
ria albidofusca on forest trees, 323.
— on hornbeam and spruce, 927.
carbonica on *Pseudotsuga menziesii*, 2570.
— on timber, 1334.
hypobrunnea on tea, 3203.
hypolateritia on tea, 620a, 1268, 1962.
monticola on timber, 681, 682, 3606.
punctata on trees, 1994.
vaporaria on timber, 1332.
weirii on *Pseudotsuga menziesii*, 672.
prosporae, toxicity of F 427 to, 739.
rtulaca oleracea, *Polymyxa* on, morphological characters of, 1345a.
tassium deficiency, effect of, on *Botrytis cinerea* on pea, 1348; on maize mosaic virus on sorghum, 1113f; on maize stalk rot, 2152; on susceptibility of *Capsicum* to *Xanthomonas vesicatoria* and peach to *X. pruni*, 3318; on *Ustilago scitaminea* on sugarcane, 3202.
— in oil palm, 596.
permanganate against *Macrophomina phaseoli* on *Colocasia esculenta*, 2953; *Phytophthora capsici* on *Capsicum*, 2949; *Uncinula necator* on grapevine, 397g; as seed treatment for tomato, 631.
persulphate, inhibition of tobacco mosaic virus on *Nicotiana glutinosa* by, 1801.
, see also Fertilizers.
tato (*Solanum tuberosum*) acropetal necrosis virus, see Potato virus Y str.
, *Alternaria solani* on, in Venezuela, 1381j; control, 597c, 1381j, 3186; intraspecific heterogeneity of, 3544; var. react. to, 3186.
, — *tenuis* on, in India, 2812; Venezuela, 297; germination of, 297; strs. of, 2812.
Andean latent virus, eggplant mosaic virus from Trinidad related to, 3301n.
aucuba mosaic virus on potato in Yugoslavia, study on, 1642.
black spot, relationship between composition of tubers and, 1957.
, *Botrytis cinerea* on, factors affecting, 3191
bouquet virus on potato in Yugoslavia, rarity of, 1642.
, α-chaconine and α-solanine in peel of, 3193.
chilling injury, symptoms of, 1255.
, *Cochliobolus carbonum* on, effect of, on steroid alkaloid production, 875.
coiled sprout, *Verticillium nubilum* associated with, 3664d.
[Potato], *Colletotrichum coccodes* on, interaction with, 93.
—, *Corticium solani* on, adaptation of, to fungicides, 420; control, 1376b, d, 1648, 2242; effect of soil disinfection on, 613; factors affecting, 455, 3301e; incidence of, 3301e; interaction of, with other pathogens, 1248; leaflet Min. Agric. & Fish. on, 2242; resistance of, to quintozene, 3015; specialization of, 455.
—, *Corynebacterium sepedonicum* on, in Denmark, 730a; Switzerland, imported into, 1652b; serodiagnostic test for, 3195; symptoms of, 1652b.
— diseases, 1641, 3306; in Poland, 2956; aircraft spraying against, 597d; key to, 1946; method for forecasting losses from, by computer, 1746a.
—, effect of organo mercury residues on tubers of, 1655.
—, *Erwinia* on, CO_2 accumulation associated with, 3196.
—, — *aroideae* on, in Malawi, 1747b; maceration by, 3666j; survival of, in soil, 3301f.
—, — *atroseptica* on, in Mozambique, imported from Ireland and Scotland, 1254; control, 877; factors affecting, 877, 1254; incidence of, 877; method for testing resistance to, 1956; survival of, in soil, 3301f; symptoms of, 877.
—, — *carotovora* on, 3315; in Germany, 2029; survival of, in soil, 3301f.
—, fungi on seed tubers of, 1375y, 2584j.
—, *Fusarium caeruleum* on, in Malawi, 1747b; control, 3664b; factors affecting, 611; phenol metabolism of, 1954; susceptibility to, 1243; var. react. to, 3184.
—, — *sambucinum* on, var. react. to, 3184.
—, — *solani* on, interaction of soil microflora with, 2816; toxicity of extracts from necrotic layer to, 2237.
*—, *Gilmaniella humicola* on, in India, 1649.
— 'gothic' virus on potato in U.S.S.R., distribution of, 598.
—, *Helminthosporium solani* on, C.M.I. description of, 3030; sources of inoculum for, 1251.
— internal black spot, histology of, 3197.
— — rust spot, 878; in Germany, 614.
— leaf roll virus on *Physalis floridana*, 601.
— — — — — on potato, 3300d; in U.S.S.R., 404, 598; Yugoslavia, 1642; carbohydrate accumulation in leaves of, 1951; detection of, 404, 597b, 602, 1224a, 1225, 3538; distribution of, 598; effect of summer planting on, 2235; evaluation of resistance to, 601; incidence of, 404; P disturbances associated with, 3539; properties and purification of, from vectors, 287; respiration in, 873; transmission of, by vectors, 2235; var. react. to, 2235, 2543, 3182.
—, lucerne mosaic virus on, in Yugoslavia, 1642.
—, *Macrophomina phaseoli* can infect, 196.
— mop-top virus on potato, spread, symptoms, and vector of, 3301k; var. react. to, 3540.
— mosaic, var. react. to, 2543.
—, *Mycosphaerella ligulicola* on, effect of leaf washings on, 1905.
—, *Oospora pustulans* on, in U.S.S.R., 1249; control, 1249; effect of bulk storage on, 1250; of lifting and storage on, 1375z;

factors affecting, 1249, 3664c, f; interaction of, with other pathogens, 1248.
[Potato], *Phoma* on, var. react. to, 3184.
—, — *eupyrena* on, 3301d.
—, — *exigua* on, leaflet Min. Agric. & Fish. on, 3545.
—, — — ff.sp *exigua* and *foveata* on, in Scotland, 3546a, b; effect of haulm destruction on, 3546a; of handling and storage on, 3546b.
—, — — var. *foveata* on, 1245, 1442; sources of inoculum for, 3301d.
—, — *foveata* on, control, 3664b; factors affecting, 1244; *P. exigua* var. *foveata* proposed for, 1245; restriction to host and spread of, 1376a.
—, — *solanicola* on, control, 1376b.
—, — *tuberosa* on, in U.S.S.R., 1246; control, 1247.
—, *Phomopsis tuberivora* on, in N.S.W., 2032c.
—, *Phytophthora cryptogea* on, in W. Australia, 2550.
—, — *erythroseptica* on, in Iran, 3063a; W. Australia, 2550; disruption of lysosome-like particles by, 3717.
—, — *infestans* on, 2584j, 3306, 3543; in Belgium, 293, 2586a; Colombia and Ecuador, 1234; Estonia, 608; Germany, 2029; Greece, 876; India, 2240; Rhodesia, 3e; Scotland, 3541; U.S.S.R., 404; Venezuela, 1381j; aerial photography of, 392d; apparatus for forecasting, 2809; for inoculating, 296; biology of, 1743s; biotypes of, 1647; control, 3e, 404, 597c, e, 607, 1235a, b, c, 1236, 1376d, 1381j, 1396, 1397, 1398, 1743s, 2240, 2241, 2383, 2548, 2961, 3542; determination of critical injury threshold of, 2548; development of, 608; effect of fungicide residues on, 597e; of hypoxanthine on spore germination, 2549; of light on wound infection, 394b; of nutrition on susceptibility to, 393a; of stickers on, 3185; of, on fluorescence in cells of, 4c; on steroid alkaloid production, 875; factors affecting, 876, 1238, 2241, 3612; forecasting outbreaks of, 4e, 294, 1808, 2586a; genetics of, 597f, 606, 1241, 1242, 2239, 3300e; infection of leaves by, 2811; isolation of antifungal substance from 1407; phenol metabolism in, 609, 1240; physiologic races of, 2238; potato vein yellowing virus as protectant against, 1234; reduction of sporulation in, by mechanical measures, 1239; resistance to, 1743s; review of, 295; severity of, 2029; sources of infection of, 3541; sporulation of, 293; spread of, in plant, 1952; technique for spraying against, 1235a; toxicity of extracts from necrotic layer to, 2237; of fungicidal aerosols to, 1237; var. react. to, 610, 1952.
—, pipecolic acid content in relation to disease resistance, 2158.
—, practical and scientific guide, 1641.
—, *Pseudomonas* on, effect of cycloheximide on resistance to, 2247.
—, — *solanacearum* on, 1955; in Kenya, 2b, 2959a; Queensland, 280; alternative hosts of, 2b, 2358b, 2959a; biotypes of, 280, 2358b; concept of vertical and horizontal resistance in, 3194; control, 2b; survival of, 2959a.
—, *Puccinia pittieriana* on, in Colombia, 3189.
— purple top wilt, review of, 600.
—, *Pythium aphanidermatum* on, inhibition of, by phenolic compound from carrot, 382.
[Potato], *Rhizoctonia* on, in Iran, 3063; U.S.S.R., diagnosis of, 2243.
— rugose mosaic virus on potato in U.S.S.R. distribution of, 598.
— seed material, propagation beds for, 2543.
— spindle tuber virus on potato, detection 1232; hosts of, 3395; infectious nucleic from host tissues of, 2808; physical properti of, 1232; symptoms and transmission 3395.
— — — — on tomato, 1232.
—, *Spongospora subterranea* on, in German 2029; control, 1376d; incidence of, 202 susceptibility to, 1650.
—, stolbur virus on, in Bulgaria, 21(Rumania, 288; Yugoslavia, 1642; factc affecting, 288; technique for preparing an serum against, 2427.
— storage disorders, 1747b.
— streak, potato viruses A+S causing, 254
—, *Streptomyces* on, in U.S.A., differentiati of, from *S. scabies*, 597g; factors affecti 1252; growth and inhibition of, 125 isolation of, 597g; serology of, 597h, 165 survival of, 1252; var. react. to, 1252.
—, — *scabies* on, in Germany, E., 202 Rumania, 397d; antagonism of soil bacter to, 2553; comparison between seed-bor and soil-borne incidence of, 2584k; contr 1376d, 1377g, 2552; differentiation of *S.* c potato in U.S.A. from, 597g; effect of l hydroxide in soil on, 394b; of organic so amendments on, 2818; of soil bacteria an substrates on, 2553; of soil moisture o 3192; factors affecting, 1653, 3664a; leafl Min. Agric. & Fish. on, 2817; strs. of, 397 use of 'little tubers' for testing fungicid against, 2551; var. react. to, 1253, 3184.
—, sulphur dioxide injury to, in Czechosl vakia, 298.
—, *Synchytrium endobioticum* on, in Switze land, 1652a; U.S.S.R., 612; aetiology c 1652a; control, 612, 1652a; differences isolates of one race of, 1651; effect of so type on, 3187; geographical distribution c 2814; method for predicting, 1073; leafl Min. Agric. & Fish. on, 2813; symptoms c 1652a; var. react. to, 1652a, 3188.
—, tar vapour injury to, 1072.
—, tests for determining health of seed, 164
—, tobacco mosaic virus on, 3300d.
—, — rattle virus on, 394e; in Yugoslavi 1642; effect of crop rotation on density vectors of, 2234a; of preceding crops o 2234b; rarity of, 1642.
*—, — veinal necrosis virus on, in Rhodesi 2359b.
—, toxicity and tolerable residues of chlori products and triphenyltin acetate in, 2042.
— tuber diseases, importance of, 1375x.
— vein yellowing virus in Colombia ar Ecuador, 1234.
—, *Verticillium* on, ? effect of soil disinfecti on, 613; susceptibility to, 478.
—, — *alboatrum* on, (?)in Iran, 3063d; *Ma awi, 1747d; distinction of symptoms i duced by, from natural senescence, 224 effect of soil temp. on, 978h; of, on leaf ar development, 2245; factors affecting, 224 2815; genetics of, 1953; penetration by ar transmission of, 2244; var. react. to, 318 virulence of, 2245.
—, — *dahliae* on, distinction of symptor

induced by, from natural senescence, 2246; effect on leaf area development, 2245.
otato, *Verticillium*] *lateritium* non-pathogenic to, 2246.
, — *nigrescens* on, 2246; effect of soil temp. on, 978h.
, — *nubilum* on, 2246; association of with coiled sprouts, 3664d.
, — *tricorpus* non-pathogenic to, 2246.
virus diseases in Bulgaria, 2100; Germany, 395a, 2637; Turkey, 1796; Venezuela, 394f; Yugoslavia, 1642; breeding against, 599; causing degeneration, 599; control, 64; determination of, 1230; factors affecting, 394f, 1947, 2233; incidence of, 2584e; rapid method for diagnosis of, 3538; review of work on, 2637; revised leaflet on, 2805; separation of, 1230; spread of, 2584e; transmission of, by grafting, 286; by vectors, 394f, 404, 1796, 1947.
— — A on potato in Colombia, 2647; U.S.S.R., 404; Yugoslavia, 1642; diagnosis of, 404, 1231; hosts of, 1455; serology of, 2647; symptoms of, 2546; technique for testing, 1224a.
viruses A+X on potato, causing streak, 2546.
virus B on potato, var. react. to, 3184.
— — M on potato, 3300d; in U.S.S.R., 404; Yugoslavia, 1642; conc. of in potatoes and tomatoes, 395e; diagnosis and incidence of, 404; serology of, 397a, 1048; transmission of, by vectors, 394e.
— — — on tomato, 395e.
— — S on potato, 2546, 3300d; in Rumania, 605; U.S.S.R., 404; Yugoslavia, 1642; comparison of methods for detection of, 2544; diagnosis, 404; effect of heat treatment on, 401g; eradication of, 1950; genetics of, 604; identification of, 605; incidence of, 404; inheritance of resistance in, 3183; isolation of, 3533; production of virus-free seed tubers of, 3535; serological detection of, 397a, 874, 1374r; tests for resistance to, 604; transmission of, by vectors, 394e; var. react. to, 603, 604, 605.
— — — on tobacco, 2544.
— — X on *Gomphrena globosa*, 778, 2254.
— — — on *Nicotiana glutinosa*, 78.
— — — on potato, 1950, 3300d; in Brazil, 290; Taiwan, 1226; U.S.S.R., 404; Yugoslavia, 1642; carbohydrate distribution in plants and resistance to, 2806; comparison of methods for detection of, 2544; diagnosis of, 404, 597a, 1457; effect of blue light on, 2357f; of heat treatment on, 401g; of removal of leaves and tops on translocation of, 1228; of summer planting on, 2235; incidence of, 404; inhibitors from leaf sap of, 3534; inhibitory activity of sap to, 1227; maintenance of virus-free plants, 1226a; production of virus-free seed tubers, 3535; serology of, 289, 397a, 2545, 2643; symptoms of, 2546; transmission of mechanically, 2235; tuber indexing for, 1226b; var. react. to, 290, 2235, 3184.
— — — on tobacco, 78, 2113, 2641, 2642.
— — — on tomato, 2108.
— — — str. G on *Chenopodium*, 3536.
— — — ring spot str., inhibition of by *Aspergillus niger* and plant extracts, 470b.
— — — — — — — on *Gomphrena globosa*, 470a.
— — — +tobacco mosaic virus on tomato, 630, 1290, 2108.
[Potato virus X] +potato virus Y on potato in Brazil, 290.
— — Y on *Capsicum*, 2648.
— — — on *Chenopodium*, 3536.
— — — on potato in Austria, imported, 291; Brazil, 290; Rumania, 1948; U.S.S.R., 404, 1645; Yugoslavia, 1642; anomalous strs. of, 2807; characteristics of strs. of, 1645; detection methods for, 2544; diagnosis of, 291, 404, 1224a, 1231, 2236, 3538; effect of planting method on, 2235; factors affecting, 1949; hosts of, 1455, 2807; incidence of, 404; indicators for, 1744d, 2647; physical properties of, 1230, 2807; serological demonstration of, 1644; study on strs. of, 1948; symptoms of, 2546; transmission of, 2235; var. react. to, 290, 2235, 2543, 3182; virulence of, 2807.
— — — on *Solanum*, 3537.
— — — on tobacco, see Tobacco.
— — — str. Y^R on potato in Yugoslavia, 1642.
— — Y^N on potato, effect of removal of leaves and tops on translocation of, 1228; infection of, 1229.
— witches' broom virus on potato, structures in tissues infected by, 657.
Potebniamyces balsamicola on *Abies lasiocarpa*, 2562f.
Pratylenchus associated with cherry rasp leaf disease, 3502.
— *brachyurus*, effect of, on *Pseudomonas solanacearum* on tomato, 3577.
— *penetrans* in relation to *Verticillium dahliae* on elm and maple, 2276.
Primafresh W5709 against *Guignardia citricarpa* on orange, 1127.
**Priotropis*, *Helicobasidium compactum* on, in India, 3203.
Privet (*Ligustrum*) virus on privet in Denmark, resembling raspberry ring spot virus, 730d.
Proceedings, see Conferences.
**Prodenia litura*, *Beauveria* on, in India, 1392.
Propazine as soil disinfectant, 3093.
—, effect of, on maize dwarf mosaic virus, 3093.
Propineb against *Bremia lactucae* on lettuce, 1375s; *Peronospora destructor* on onion, 18; *P. parasitica* on cabbage, 1375s, 3616; on cauliflower, 1375t; *P. tabacina*, 625.
Protomyces macrosporus on coriander, 2430.
Prune (*Prunus domestica*) dwarf virus, hosts of and *Prunus* necrotic ring spot virus not related to, 254.
— — — on apricot, 1618.
— — — on cherry, 2212, 2355g, 2530.
— — — on *Prunus*, 2032p.
— — —, serology of, 1194.
Prunus, apple latent virus on, in N.S.W., 2032p.
—, cucumber mosaic virus Y str. on, 3055.
— necrotic ring spot virus, differentiation of from cherry Lambert mottle virus, 2216; prune dwarf virus, 254; rose mosaic virus, 843.
— — — — — —, hosts of, 254, 568.
— — — — — —, resemblance of *Dahlia* virus 4 to, 3901; plum pox virus to, 2210a.
— — — — — — on cherry, see Cherry.
— — — — — — on cucumber, 1193.
— — — — — — on hop, 2355j.
— — — — — — on peach, 2212.
— — — — — — on rose, 401b.
— — — — — +plum pox viruses on plum 1377l.
— — — — — —, serology of, 568, 1194.

[*Prunus*], peach yellows virus on, symptomless carriers of and sources of infection for, 852.
—, prune dwarf virus on, in N.S.W., 2032p.
— virus diseases, factors affecting graft transmission of, 1192.
— *amygdalus*, see Almond.
— *armeniaca*, see Apricot.
— *avium*, see Cherry.
— *cerasifera*, *Prunus* necrotic ring spot virus on, serological demonstration of, 568.
— — var. *divaricata*, plum pox virus can infect, 1196.
— — — —, *Pseudolachnea elegans* on, in U.S.S.R., 1179.
— — — —, *Venturia cerasi* on, in Rumania, hosts of, 577.
— *cerasus*, see Cherry.
— *domestica*, see Prune and Plum.
— — var. *italica*, see Greengage.
— *insititia*, see Damson.
— *laurocerasus*, see Cherry, Laurel.
— *mahaleb*, *Prunus* necrotic ring spot virus on, serological demonstration of, 568.
— *persica*, see Nectarine, Peach.
— *serotina*, *Dibotryon morbosum* on, germination of ascospores of, 573.
— —, use of to separate cherry Lambert mottle virus from *Prunus* ringspot virus, 2216.
— *virginiana*, apricot xylem aberration can infect, 851.
Psammotettix striatus in relation to Gramineae virus diseases, 232.
— — transmitting wheat mosaic virus, 486.
Pseudolachnea elegans in U.S.S.R., hosts of, 1179.
Pseudomonas alboprecipitans on maize, 3437.
— *andropogonis*, effect of antibiotic substances of *Trichoderma kongingii* and *T. viride* on, 1405.
*— — on *Euchlaena mexicana*, 1171.
— — on maize, 1171, 3437.
— — on Sudan grass, 1171.
— *angulata* on tobacco, 2834.
— *aptata* on beet, 1711.
*— *azadirachtae* on *Azadirachta indica*, 326.
— *cannabina* on hemp, 1900.
— *caryophylli* on carnation, 1583, *2497, 3129.
— *cerasi* on cherry, 857.
— *coronafaciens* on oats, 145.
— *delphinii* on *Delphinium*, 542.
— *fluorescens*, effect of antibiotic substances of *Trichoderma* on, 1405.
— — on tobacco, 1286, 1744c.
— *glycinea* on soybean, 703, 3636, 3637.
— *lachrymans* on cucumber, 996, 1369, 2029.
— — on *Cucumis*, 2940.
— *lapsa* on maize, 162, 411, 1113c.
— *lupini* on lupin, 846.
— *maculicola* on Brussels sprouts, 2585c.
— *marginalis* on hyacinth, 1374o.
— — on (?) tomato, 1746b.
— — +*Penicillium cyclopium* on hyacinth, 1374o.
— *mors-prunorum* on cherry, see Cherry.
— — on pear, 2208.
— —, *P. syringae* on pear distinct from, 1611.
— — cherry str. on cherry, 2355a.
— *panici*, *P. setariae* not synonym of, 2746.
— *phaseolicola* in soil, 3018.
— — on bean, see Bean.
— —, serological relationship of races of, 2916.
— *pisi*, effect of antibiotic substances of *Trichoderma* on, 1405.
[*Pseudomonas*] *rubrilineans* on maize, 804.
*— *rubrisubalbicans* on sugarcane, 1747d.
— *savastanoi* on bean, 410.
— — on olive, 2536, 3322.
— (?)*schuylkilliensis* on rice kernels, 521.
— *sesami* on sesame, 869, 1942.
— *setariae*, hosts of, 2746.
— *solanacearum*, hosts of, 2594, 3306.
*— — on banana, *1933, 2535, 3306.
— — on *Capsicum*, eggplant, and *ginger, 28
— — on *Musa textilis*, 1933.
— — on *Physalis peruviana*, 280.
— — on potato, see Potato.
— — on *Solanum andigenum* and *S. phure*
1955.
— — on tobacco, 1671, 3563.
— — on tomato, see Tomato.
— — on weeds, 280, 2959a.
— — on *Zinnia*, 280.
— —, synthesis of IAA by, 736.
— (?)*straminea* on rice kernels, 521.
*— *striafaciens* on oats, 2693.
— *syringae* on bean, 2331.
— — on cherry, 2355b.
— — on citrus, 1073.
— — on cowpea, 2373.
— — on maize, 1530.
— — on peach, 261, 1203, 1617.
— — on pear, 1611, 2757, 2758.
— — on pome fruit, 2209.
— — on poplar, 2854.
*— — on raspberry, 263.
— — on stone fruit, 2209, 2747.
— — on tobacco, 1286, 1744c, 3316.
— —, production of syringomycin by, 1203.
*— — var. *capsicicola* on *Capsicum*, 2026.
— *tabaci*, toxin produced by, 1421.
— —, effect of antibiotic substances of *Trich*
derma on, 1405.
— — on bean, 394c.
— — on tobacco, see Tobacco.
— *tolaasii* on mushroom 728, 3663.
*— *tonelliana* on oleander, 1588.
— (?)*trifolii* on rice kernels, 521.
— *vignae*, effect of antibiotic substances
Trichoderma koningii and *T. viride* on, 140
— *viridiflava* on bean, 3299j.
— *xanthochlora* on lupin, 846.
Pseudoperonospora cubensis, hosts of, 969.
— — on cantaloupe, 715.
— — on cucumber, 85, 970, 2346.
— — on watermelon, 1365.
— *humuli* on hop, see Hop.
Pseudopeziza medicaginis on lucerne, 557, 144
— — on *Medicago*, 1168b.
— *ribis* on gooseberry, 1440.
— *tracheiphila* on grapevine, see Grapevin
Pseudotsuga menziesii corky root disease
Canada, association of *Nectria radicicola* a
nematodes with, 2881.
— —, *Dermea pseudotsugae* on, factors affec
ing, 671.
— —, *Diaporthe lokoyae* on, perfect state
Phomopsis lokoyae, 2571.
— —, *Fomes annosus* on, effect of resin
resistance to, 3229.
— —, fungi on needles of, interrelationship
aphids, and, 3240.
— —, *Fusarium* on, in Chile, 3594.
*— —, *Helicobasidium purpureum* on, in Be
gium, 2586a.
— —, *Melampsora medusae* on, in Canad
643e.

eudotsuga menziesii], *Poria carbonica* on, inhibition of by *Scytalidium*, 2570.
—, — *weirii* on, differences in phenolic extracts from healthy and infected roots of, 3572.
—, *Rhabdocline pseudotsugae* on, effect of phytoactin on, 1325.
—, *Rhizina undulata* on, in Canada, pathogenicity of, 3241.
—, *Verticicladiella wagenerii* on, in U.S.A., 2880; pathogenicity of, 354.
idium guajava, see Guava.
ilocybe agrariella on cranberry, 1627.
vlla in relation to citrus greening virus, 524.
piri transmitting pear red mottle virus, 2756.
pyricola associated with pear leaf drop symptom of pear decline virus, 2755.
— transmitting pear leaf curl disease, 1191.
eridophyta, fungi on, in Estonia, hosts, incidence and morphology of, 2079.
erospermum, *Nectria pterospermi* on, accumulation of growth regulators in, 3014.
uccinia in Colombia, 3306.
- *agropyri*, hosts of and resistance to, 96a.
- *allii* on chives, 3668c.
- *antirrhini* on *Antirrhinum*, see *Antirrhinum*.
- *arachidis* on groundnut, 1939.
- *arrhenatheri* on barberry, 2496.
- *bhutanensis* on *Pedicularis ?kingii*, 2622.
- *carthami* on safflower, 3176, 3177.
- *coronata*, nuclei of germination structures produced by uredospores of, 2630.
- — on *Aegilops*, 2439.
- — on cereals, 2440.
- — on oats, see Oats.
- — f.sp. *agrostis* on *Agrostis pilosula*, 3476.
- — — *avenae* on *Arrhenatherum elatius* and *A. erianthum*, 2512.
- — — — on *Dactylis glomerata*, 1910.
- — — *festucae* on *Festuca gigantea*, 3476.
- — *erianthi* on *Narenga porphyrocoma*, 1959.
- — on sugarcane, 2359a.
- *flaveriae* on *Calendula*, 2732.
- *glumarum*, see *P. striiformis*.
- *graminis*, comparison of rod and slide samplers for trapping uredospores of, 3405.
- —, factors affecting differentiation and germination of uredospores of, 784.
- —, hosts of, 3404.
- — in the air, 5a, b.
- —, inhibition of germination of, by extracts from *Ustilago striiformis*, 31.
- —, metabolism of propionate by, 1769f.
- — on *Aegilops*, 2439.
- — on *Avena*, 2660.
- — on barberry, 1377a, 2496, 2962.
- — on barley, see Barley.
- — on *Bromus japonica*, 2660.
- — on *Bryophyllum*, 103.
- — on cereals, see Cereals.
- — on *Hordeum*, 2660.
- — on *Lolium multiflorum*, 1168a.
- — on maize, 1517.
- — on *Muehlenbergia hugelii*, 2660.
- — on oats, see Oats.
- — on onion, 103.
- — on rye, 2694, 3075.
- — on *Vulpia myuros*, 2660.
- — on wheat, see Wheat.
- — + *Tilletia caries* on wheat, 488.
- — f.sp. *agropyri-repentis* on *Agropyron* and *Elymus*, 96b.
[*Puccinia graminis* f.sp.] *avenae*, *Darluca filum* on, in Brazil, 1168a.
— — — — on *Dactylis glomerata*, 1910.
— — — *secalis* on *Agropyron* and *Elymus*, 96b.
— *helianthi*, effect of light on germination of uredospores of, 978m.
— — on sunflower, See Sunflower.
— *hordei* on *Aegilops*, 2439.
— — on barley, see Barley.
*— *horiana* on *Chrysanthemum*, see *Chrysanthemum*.
— — on *C. morifolium*, 1155.
— *iridis* on *Iris*, 2366.
— *kuehnii* on sugarcane, 3065.
— *malvacearum* in Chile, 82.
*— *menthae* on *Mentha spicata*, 2032c.
— — on peppermint, 1220, 3178.
*— *pelargonii-zonalis* on *Pelargonium*, see *Pelargonium*.
— *penniseti* on *Pennisetum typhoides*, 1113m.
— *pittieriana* on potato and *Solanum*, 3189.
— *polysora* on maize, see Maize.
— — on *Tripsacum laxum*, 152b.
— *pringsheimiana* on gooseberry, 1927.
— *psidii* on *Eugenia jambos*, 2037.
— — on pimento, 2958b.
— *purpurea* on sorghum, 1113l.
— *recondita*, comparison of rod and slide samplers for trapping uredospores of, 3405.
— —, effect of, on plant respiration, 751.
— —, folate and shikimate levels in uredospores of, 788.
— —, hosts of, 2126.
— — on *Aegilops*, 493, 2439.
— — on *Agropyron*, 493.
— — on barley, 111, 1819.
— — on *Bromus japonica*, 2660.
— — on cereals, 3076.
— — on rye, 2694.
— — on *Thalictrum*, 3417.
— — on *Thalictrum speciosissimum*, 493.
— — on wheat, see Wheat.
— — on wheat × *Agropyron intermedium*, 1489.
— — on wild grasses, 1487.
— —, resemblance of wheat 'brown neck' symptoms to, 3087.
— — + wheat streak mosaic virus on wheat, 2125.
— *sorghi* on maize, see Maize.
— *striiformis*, effect of atmospheric ions on germination of uredospores of, 32.
— — on *Aegilops*, 2439.
— — on *A. comosa*, 1834.
— — on barley, see Barley.
— — on cereals, 3063a, 3076.
— — on *Muehlenbergia hugelii*, 2660.
— — on *Poa pratensis*, 2509.
— — on wheat, see Wheat.
— — f.sp. *dactylidis* on *Dactylis glomerata*, 1910.
— *substriata* on tobacco, 891.
— — var. *penicillariae*, cytological studies on germinating teliospores and basidiospores of, 1532.
— — — — on *Pennisetum typhoides*, 1113n.
— — — —, self-inhibition and self-stimulation of uredospore germination in, 1769e.
— *triseti*, see *P. recondita*.
— *triticina*, see *P. recondita*.
— *trollii* on Ranunculaceae, 539.
— *veronicae-longifoliae* on *Veronica longifolia*, 2623.

*[*Puccinia*] *zoysiae* on *Zoysia*, 554.
— — on *Z. japonica*, 236, 1067.
Pucciniastrum epilobii, differentiation of *P. goeppertianum* on *Abies lasiocarpa* from, 448.
— — on *Abies balsamea*, 2562c.
*— — on *A. grandis*, 2586a.
— *goeppertianum* on *Abies lasiocarpa*, 448.
Pumpkin (*Cucurbita pepo*), cucumber mosaic virus on, in Germany, symptoms of, 1362.
—, *Mycosphaerella melonis* on, in N.Z., symptoms of, 2943.
—, *Pseudoperonospora cubensis* on, non-occurrence of, in S. Africa, 969.
—, tobacco mosaic virus str. Y–TAMV on, 3385.
—, wild cucumber mosaic virus on, production of tubes of virus particles by, 3614.
P.V.C. emulsion against *Guignardia citricarpa* on orange, 1127.
Pycnanthus angolensis, blue stain fungi and *Botryodiplodia theobromae* on, infection and penetration by, 645.
Pyrenochaeta lycopersici associated with tomato brown root rot, 3571.
— — in soil, 3571.
— *terrestris*, hosts and severity of, 2119.
— — in maize roots, 161.
— — on onion, 2930.
— — on tomato, 391e, 394j.
— —, technique for comparing hyphal cells of, 2632.
Pyrenomycetes on fruit, 1598.
Pyrenophora avenae on cereals, 1077.
— — on oats, 1858.
— *bromi* on *Bromus inermis*, 2511, 2743.
— *graminea* on barley, 98, 798.
— *teres* on barley, see Barley.
— — on cereals, 1077.
— — + *Cochliobolus sativus* on barley, 2690.
Pyricularia oryzae, effect of β-acylphenylhydrazine derivatives on, 516.
— —, factors affecting, 1543.
— — in air over rice fields, 1865a.
— — in Colombia, 3306.
— —, mechanisms of genetic changes in, 175.
— —, media for sporulation and stock cultures of, 1118b.
— — on rice, see Rice.
— —, physiological studies with, 1769i.
— —, production of indole acetic acid by, 3106.
— —, ultrastructure of, 2708.
— *setariae* on *Setaria italica*, 2154.
Pyridine in combination against *Peronospora tabacina*, 627.
Pyrus communis, see Pear.
— *serotina*, *Erwinia amylovora* on, var. react. to, 2525.
— — yuzuhada disease, (?)relationship of, to black-end and hard-end of pear, 2526.
— *ussuriensis*, *Erwinia amylovora* on, var. react. to, 2525.
Pythium, diagnosis and figures from original descriptions, 3741.
— in association with pea root rot, 952.
—, key to, 51.
—, transmitting pea false leaf roll virus, 1714.
— *acanthicum* on pine, 2863b.
*— (?)— on sugarcane, 2249b.
— *afertile* on pine, 3596.
— *aphanidermatum*, effect of bean exudates on growth of, 755; carbohydrates on toxicity of cycloheximide to, 426a; of different C sources on growth of, 3003; of N on toxicity of cycloheximide to, 426b.
[*Pythium aphanidermatum*] in soil, 442, 2902.
— —, morphology of zoospores of, 2085.
— — on barley, 2442.
— — on bean, 85, 1381k.
*— — on beet, 3260.
— — on carrot, 382, 1359.
— — on cotton, 1572.
— — on cucumber, 85.
— — on oats, 2442.
— — on *Phaseolus aureus*, 1351.
— — on potato, 382.
— — on tobacco, 3210.
— — on tomato, 85.
— — on wheat, 2442.
*— *arrhenomanes* on wheat, 127, 2442.
— *debaryanum*, *Aphelenchoides composticola* and *Ditylenchus myceliophagus* on, growth of, 2077.
— — in soil, 1347.
— —, inhibition of, by *Streptomyces rimosus*, 978d.
— — on beet, 1344.
— — on cabbage, 3620.
— — on *Capsicum*, 2027.
— — on cotton, 1571, 1572.
— — on pea, 952.
— — on trees, 2272, 2284.
— — on vetch, 2032f.
— — on wheat, 127.
— —, structure of cell wall of, 3039.
— —, taxonomic study of, 1792.
— *graminicola*, inhibition of, by soil fungi, 1783
— — on wheat, 2132, 2682.
*— *hydnosporum* on pea, 1719.
— *irregulare*, taxonomic study of, 1792.
— — on trees, 2272.
— *myriotylum*, hosts of, 2434.
*— — on bean, 2913.
— — on groundnut, 2579, 2587b.
— *paroecandrum* on cotton, 1571.
— — on trees, 2272.
— — on wheat, 127.
— *splendens* on barley and oats, 2442.
— *sylvaticum* in soil, 1029.
— — on *Liquidambar styraciflua*, 908.
— *ultimum*, effect of chloramphenicol on, 2046, 2059.
— — in soil, see Soil.
— — on *Agrostis tenuis*, 3138.
— — on cotton, 527, 1571.
— — on maize, 2476.
— — on melon, 978p.
— — on parsley, 714.
— — on pea, 41, 952, 978c.
— — on *Phaseolus aureus*, 1351.
— — on trees, 2272.
— —, ultrastructural study of sexual reproduction in, 1443.

Quercus, see Oak.
Quince (*Cydonia oblonga*) as indicator for apple bark necrosis and apple sooty ring spot viruses, 2519.
— bark necrosis virus, ?relationships of, 2519
—, *Coniothyris cydoniae* and *Cryptocoryneum lignicola* on, in U.S.S.R., 1179.
—, *Fabraea maculata* on, in U.S.A., 1921 control, 3495; effect of, on budding with pear, 1921; factors affecting, 3495; over wintering of, 3495.

ince], *Pseudolachnea elegans* on, in U.S.S.R., 179.
Sclerotinia linhartiana on, control, 397h.
ooty ring spot virus, ?relationships of, 519.
nolate 15 as seed treatment for pine, 3595b.
20 as seed treatment for pea, 2905.
inolinate as seed treatment for apple, 1377m.
inoline as seed treatment for wheat, 1491.
uinolinols, effect of substituted constituents n antifungal activity of, 2599.
-quinolinol benzoate against *Valsa cincta* n plum, 1199.
— — in combination against *Valsa cincta* on lum, 3498.
— phosphate against *Valsa cincta* on peach, 575.
inomethionate against *Sphaerotheca mors-uvae* on currant, 1375q.
intozene against *Botrytis cinerea* on grape-vine, 2791; on lettuce, 2343; *Corticium solani* on tomato, 318; *Fusarium oxysporum* f.sp. *vasinfectum* on tomato, 1970; *Plasmodiophora brassicae* on cabbage, 2307; *Rosellinia* on coffee, 1134; *Sclerotinia minor* and *S. sclerotiorum* on lettuce, 2343; *Sclerotium rolfsii* on *Eleusine coracana*, 1113o; *Sphacelotheca reiliana* on maize, 159; *Streptomyces scabies* on potato, 1653, 2551; *Verticillium alboatrum* on tomato, 1970; as seed treatment for wheat, 2134; as soil disinfectant, 377, 967, 1377m, 2933a, 3595a, 3617, 3620.
-, effect of on *Corticium solani* strs. on carnation, 222; on growth of fungal antagonists, 1173c; on *Typhula* on *Ficus pumila*, 543; on *T. incarnata* on barley, 2691; on *Verticillium dahliae* on cotton, 1569.
-, inhibition of actinomycetes in soil by, 3025; of *Corticium solani*, *Fusarium oxysporum*, and *Sclerotium rolfsii* by, 3305a.
-, resistance of *Corticium solani* to, 3015.
-, toxicity of, to tomato, 2378.
- in combination against *Sclerotinia minor* on radish, 2356d; *Corticium solani* on broad bean, 3633.
- -Borzesti as soil disinfectant, 1377g.
- -thiram as seed treatment for wheat, 2134.

adiation, effect of, on *Coniophora puteana* on timber, 2303; on germination of teliospores of *Tilletia* and *Ustilago*, 97; on *Serpula lacrimans* on timber, 2303; on susceptibility of wheat to *Erysiphe graminis*, 792.
adicula sylvestris, tobacco mosaic virus on, amino acid composition of proteins of, 2111.
adish (*Raphanus sativus*), *Albugo candida* on, anaerobic metabolism of, 2898; description of apparatus for measuring photosynthetic and CO_2 exchange in, 2310; effect of, on carbohydrate levels, photosynthesis and translocation in, 2311.
-, *Corticium solani* on, mode of penetration by, 2591.
-enation mosaic virus on radish in Japan, hosts of, study on, and transmission of, 2309.
-mosaic virus in U.S.A., differentiation of radish virus in Japan, from, 2309.
- — — on Indian mustard, 471.
-, *Pyrenochaeta terrestris* on, 2119.
-, *Sclerotinia minor* on, control, 2356d.
[Radish], Japanese (*Raphanus sativus* var. *raphanistroides*), *Alternaria japonica* on, formation of lignin, 1340.
Radosan against *Ustilago avenae* on oats, 1511.
Ramularia beticola on beet, *1343, 2584r, 2585e.
— *coriandri* on coriander, 278.
— *deusta* on *Lotus corniculatus*, 1168b.
— *gossypii*, *Mycosphaerella areola* perithecial state of, 1896.
— — on cotton, 821.
— *lewisii* on *Mimulus lewisii*, 2622.
Ramulispora sorghi on sorghum, 2587a.
*— — on Sudan grass, 807.
Ranunculaceae diseases in U.S.S.R., 539.
Rape (*Brassica napus* var. *oleifera*), *Plasmodiophora brassicae* on, in England, technique for testing for, 938.
—, *Sclerotinia sclerotiorum* on, in Germany, spread of, 1998.
Raphanus sativus, see Radish.
— — var. *raphanistroides*, see Radish, Japanese.
Raspberry (*Rubus*), *Agrobacterium tumefaciens* on, *Meloidogyne hapla* associated with, 2777.
—, *Botrytis cinerea* on, control, 2219; dichlofluanid residues on, 3664e.
—, *Cryptocoryneum lignicola* on, in U.S.S.R., 1179.
—, *Didymella applanata* on, in U.S.S.R., 2776, 3509; control and factors affecting, 3509; nuclear changes in ascus, 3160.
— diseases, Agric. Handbook U.S. Dept Agric. on, 3507.
—, *Elsinoe veneta* on, in U.S.S.R., 2776; control, 1377n.
—, *Hapalosphaeria deformans* on, in Scotland, 1209; effect of elvaron on, 3301b; epidemiology of, 1209.
—, Lloyd George, yellow blotch virus, ?identical with raspberry ring spot virus, 2218.
—, *Phytophthora erythroseptica* on, 1623.
*—, *Pseudomonas syringae* on, in Canada, 263.
— ring spot virus in the Netherlands, transmission of, by nematodes, 1059.
— — — — — on cherry, 2217.
— — — — —, privet virus in Denmark resembling, 730d.
— — — — —, technique for detecting, 1457.
— — — — — Lloyd George str. on raspberry (?)identical with Lloyd George raspberry yellow blotch, properties and transmission of, 2218.
—, *Rubus* stunt virus on, in U.S.S.R., identification of, 262.
—, *Sphaerotheca macularis* on, control, 2219.
—, strawberry latent ring spot virus on, in Scotland, transmission of, by seed and *Xiphinema diversicaudatum* associated with, 3508.
—, tomato ring spot virus on, effect of, on, 1622.
—, — — — — — str. on, causing 'crumbly berry', 2775.
— virus diseases, control, 64.
—, *Xanthomonas rubi-idaei* on, in U.S.S.R., 3510.
Rauwolfia serpentina 'bunchy top' virus, resemblance of symptoms of, to aster yellows virus, 2799.
Ravenelia humphreyana on *Caesalpinia pulcherrima*, 2037.
Reglone, see Diquat.
Reports (see also Conferences), **Australia** (Div. Pl. Ind. C.S.I.R.O.), 1380; **Belgium** (Agron. Res. Cent., Gembloux), 2586; **Cambridge** Plant Breeding Institute, 2585; **Canada**

(Forest Insect & Disease Survey), 643, 2562; (Min. Agric., Quebec), 4; (Phytopath. Soc.), 978; (Pl. Res. Inst.), 3667; **Ceylon** (Rubber Res. Institute), 3549; (Tea Res. Institute), 1268; **Chile** (Grapevine diseases), 581; **Cyprus** (Agric. Res. Institute), 1123; **Denmark** (Seed Station), 940; (State phytopath. Exp. Station), 730; **E. Africa** (Agric. & Forestry), 1379; **E. Malling** Res. Stn., 2355; **Edinburgh** School of Agric., 3664; **France** (Diseases of market garden crops), 3611; (Int. Poplar Commission, Versailles), 334; **Germany** (Federal Biol. Inst. Agric. Forestry), 394, 2357; **Ghana** (Cacao Res. Institute), 3070; **Glasshouse Crops** Res. Institute, 390; **Hawaiian** Sug. Plrs' Ass. Exp. Stn, 2249; **Hong Kong** (Div. Agric. Fish.), 3668; **India** (I.A.R.I. New Delhi), 398, 2033; (Res. Dept Indian Coffee Bd), 2169, 3445; (S. India Tea Dept), 621; (Tea, Tocklai), 3203; **INRAT** (Fruit tree culture), 1924; **Italy** (Experimental lab. and Turin plant diseases observatory), 396; **Kenya** (Dept Agric.), 2, 2358, 2959; **Malawi** (Dept Agric.), 399; (Pl. Path. Lab., Bvumbwe), 1747; **Malaya** (Rubber Res. Institute), 880; **Mauritius** (Sugarcane), 3198; **Mediterranean region** (1st Meeting on Phytiatry & Phytopharmacy), 1745; **Natn Inst. Agric. Botany,** Cambridge, 3300; **Natn Veg. Res. Stn,** Warwick, 3299; **Netherlands** (Res. Stn, Floriculture Aalsmeer), 3459; (Wageningen Inst. Phytopath. Res.), 1; **N.S.W.** (Dept Agric.), 2032; **N.Z.** (Forest Res. Inst.), 919; **Nigeria** (Cocoa Res. Inst.), 2438; (Inst. Agric. Res., Samaru), 2587; (Inst. for Oil Palm Research), 3180; **Papua & New Guinea**, 400; **Phillipines** (Citrus virus diseases), 2164; (Int. Rice Res. Inst.), 169, 1537; **Queensland** (Bureau Sug. Exp. Stn), 882; **Reunion** (I.R.A.T.), 979, 3551; **Rhodesia** (Sec. Agric.), 3, 2359, 2588; **Rocky Mtn Forest** Exp. Stn, 2271; **Rothamsted,** 2584; **Rumania** (Plant Prot.), 397, 1377; **S. African** Sug. Exp. Stn, 1259; **Scottish** Hort. Res. Inst., 3301; **Tanganyika** (Sisal Grow. Ass.), 538; **Trinidad** (Cacao Res. Imp. College Agric.), 1470; **U.K.** (For. Res.), 3219; **Venezuela** (6th Agron. Conf.), 1381; **Welsh** Plant Breeding Stn, 3665; **W. Scotland** agric. College, 1746; **Wye College** Hop Res., 3524.

Review of Applied Mycology, Plant host—pathogen index to vols. 1–40, 1384.

Rhabdocline pseudotsugae on *Pseudotsuga menziesii*, 1325.

Rhacodiella vitis on grapevine, see Grapevine.

Rhamnus purpureus, alternate host for *Puccinia coronata* f.spp. *agrostis* and *festucae*, 3476.

Rheum, see Rhubarb.

Rhinotettix breviceps not transmitting *Pennisetum purpureum* stunting virus, 1379c.

Rhizina undulata, effect of temp. on ascospore germination of, 350a.

— — on pine, *3a, 350b.

— — on *Pseudotsuga menziesii*, 3241.

Rhizobium lupini, effect of, on *Fusarium oxysporum* f.sp. *lupini* on lupin, 1743c.

— *trifolii* in soil, 1172.

Rhizoctol as seed treatment for pine, 3595b.

Rhizoctonia in Iran, hosts of, 3063b.

— *carotae* on carrot, 2341.

— *dichotoma*, *R. endophytica* var. *endophytica*, and *R. e.* var. *filicata* on Coniferae, 1695.

[*Rhizoctonia*] *fragariae* on strawberry, formit mycorrhiza, 3669d.

— *globularis* and *R. hiemalis* on Conifera 1695.

— *lamellifera* on oil palm, 871.

Rhizophoma redescribed as *Rhizosphaer* 1313.

Rhizopogon roseolus, antagonism of antibio from, to fungi, 1764.

Rhizopus, taxonomic study of, 1793.

— *kazanensis*, primary luminescence of, 460.

— *microsporus* and *R. nodosus*, synonymo with *R. oryzae*, 1793.

— *oryzae*, *R. microsporus*, *R. nodosus*, and *tritici* synonymous with, 1793.

— *stolonifer*, autotropism in spores of, 2051.

— —, effect of, on plant respiration, 751.

— —, inhibition of book-damaging fungi b 3703; by quintozene, 1173c.

— — on apricot, 3694.

— — on beet, stored, 2903.

— — on cherry, 1925, 3694.

— — on coffee, 1558.

— — on fungal sclerotia, 1173b.

— — on papaw, 3061.

— — on peach, 3694.

— — on stone fruit, 3157, 3694.

— — on tobacco, 3565.

— — on tomato, 898.

— — on *Trichosanthes dioica*, 3061.

— — on vegetables, 2893.

— —, primary luminescence of, 460.

— —, tolerant to DCNA, 3694.

— *tritici*, synonymous with *R. oryzae*, 1793.

Rhizosphaera, taxonomy of, 1313.

— *kalkhoffii* and *R. pini* on Coniferae, 1313.

— — on spruce, 357.

— *radicata*, synonym of *R. kalkhoffii*, 1313.

Rhodandinitrobenzol against *Puccinia mentha* on peppermint, 3178.

Rhododendron, *Cylindrocladium floridanum* an *C. scoparium* on, in U.S.A., control, 3461.

—, *Fusarium*, *Nectria radicicola*, *Pestalotiopsi versicolor*, and *Phytophthora cinnamomi* o control and symptoms of, 1374n.

— witches' broom not caused by virus, 394f.

Rhodotorula glutinis, inhibition of, by chlor amphenicol, 2046.

Rhopalomyzus ascalonicus transmitting turni yellows virus, 395g.

Rhopalosiphum insertum, *Entomophthora pyri formis* on, in France, key for differentiatio of, 3323.

— *maidis*, *Entomophthora* on, in India, 413.

— — not transmitting maize mosaic virus i Hawaii, 1107.

— — transmitting abaca mosaic virus, 1577 maize mosaic virus, 149.

— *padi* transmitting barley yellow dwarf virus 394e, 1078, 2659.

Rhubarb (*Rheum*) virus diseases, control b apical tip culture, 3294.

Rhus trilobata, *Cylindrosporium* on, control 335.

Rhynchosphaeria cupressi on *Juniperus*, 2958b

— *secalis* on barley, 1375i, 1849, 2585h.

Rhytisma acerinum on *Acer*, 1974.

Ribes, see Currant.

— *grossularia*, see Gooseberry.

Rice (*Oryza sativa*) 'accep na pula' in th Philippines, relationships of, 169.

— 'akagare' disease, study on, 1549.

—, *Aspergillus flavus* on, factors affectin

nfection and germination of, 1467; production of hydrolytic enzymes by, 520.
ce] black-streaked dwarf virus on rice in apan, effect of, forecasting of, and transnission of, 170; temperate Asia, 169.
' branca ' in Portugal, ?Cu deficiency causing, 1481.
' bronzing ' in Ceylon, symptoms of, 3112.
bushy stunt ?virus in S. Vietnam, 169.
-, *Cercospora oryzae* on, in India, morphology and symptoms of, *3107; Madagascar, 3065; *Sphaerulina oryzina* perfect state of, 179.
, *Chaetomium trilaterale* and *Cochliobolus lunatus* on stored, production of hydrolytic enzymes by, 520.
chlorotic stunt ?virus in S. Vietnam, 169.
, *Cochliobolus miyabeanus* on, in Asia (S.E.), 2480; India, 1865b; Madagascar, 3065; Malawi, *1747d; Pakistan, 517; biochemical studies of diseased leaves of, 1869a, b; breeding against, 176; control, 177, 1113x, 1864, 2480; effect of fertilizers and sowing time on, 1122; factors affecting, 178, 517, 809; fine structure of hyphae of, 1871; pathological anatomy of, 1870; production of auxin by, 1113t; review of, 2161; study on, 178; var. react. to, 1113x.
—, — *sativus* on, in N.S.W., *2032a.
-, *Corticium sasakii* on, in Taiwan, 180; control, 1864; physiological specialization of strs. of, 2711; strs. of, 180; technique for inoculating, 1537c.
-, — *solani* on, antagonism of *Trichoderma viride* to and cultural study on, 3108.
-, *Curvularia* on, in India, 1865b.
-, — *pallescens* on stored, production of hydrolytic enzymes by, 520.
- diseases in Asia (S.E.), 2480; breeding against, 1537, 2480; control, 2430.
- dwarf virus on rice in Japan, 169, 170; Philippines and temperate Asia, relationships of, 169; control, effect of, forecasting of, and transmission of, 170.
-, effect of fatty acids in soils and flood water on, 184.
-, *Entyloma oryzae* on, effect of plantvax and vitavax on, 1539; var. react. to, 519.
-, *Erwinia herbicola* on kernels of, morphological and physiological characters of, 521.
-, *Fusarium culmorum*, *F. episphaeria*, *F. oxysporum*, *F. roseum*, *F. solani* and *Gibberella fujikuroi* in field soil of, in U.S.A., 810.
-, *Gibberella fujikuroi* on, in India, 1865b; production of hydrolytic enzymes by, 520.
- grassy stunt virus on rice, effect of time of inoculation on, of, on yield, 1537f; relationships of, 168, 169.
-, *Helminthosporium* on, production of auxin by, 1113t.
-, — *sigmoideum* var. *irregulare* on, in the Philippines, 1537b.
- hoja blanca virus on rice, 2479, 3306; in Mexico, 1538; Western Hemisphere, 169; hosts of, 3103; transmission of, by vectors, 1538, 3103, 3439; var. react. to, 1538, 3439.
- khaira disease, Zn deficiency causing, 3111.
-, *Khuskia oryzae* on, relationship of, with host, 181.
- leaf yellowing virus on rice in India, relationships and transmission of, 168, 169.
-, *Leptosphaeria salvinii* on, in the Philippines, 1537b; control, 3336; effect of Cu, Zn, and Hg compounds on, 1545; evaluation of fungicides against, 811; var. react. to, 1537b; viability of sclerotia of, 182.
[Rice] mentek in Indonesia, ?virus causing, 169; rice tungro virus str. ' M ' resembling, 513.
— ' necrotic mosaic ' ?virus in Japan, 169.
— orange leaf virus on rice, relationships of, 168.
— ' pansukh ' disease, composition of affected leaves, 185.
— penyakit merah virus in Malaysia, relationships of, 168; rice tungro virus str. ' M ' resembling, 513.
— production manual, new edition of, 512.
—, *Pseudomonas* (?)*schuylkilliensis*, *P.* (?)*straminea*, and *P.* (?)*trifolii* on, morphological and physiological characters of, 521.
—, *Pyricularia oryzae* on, 1113r; in Asia, 1537a, 2480; Colombia, 1542, 2157; Hungary, 514; India, 1113v, 1865b; Japan, 171; Madagascar, 3065; Philippines, 2710; assessment of non-mercury fungicides against, 2159; breeding against, 171; classification and identification of races of, 171; C.M.I. description of, 3030; control, 1113y, z, 1120, 1541, 1864, 2159, 2160a, b, 2480, 2709; diurnal periodicity in conidia dispersal, 173; electron micrographs of, 1866a, b; factors affecting, 1113w, 1121, 1867; fine structure of hyphae of, 1871; forecasting of, 1808; genetics of, 2156, 2707; geographical distribution of, 1113v; identification of, 2157; inhibition of, 2160b; nutritional aspect of host-parasite relationship of, 3104; physiologic races of, 172, 514, 1113v, 1117, 1542, 1868; pipecolic acid content in relation to resistance, 2158; relationship between water movement and temp. in, 174; resistance of, to fungicides, 3105; to kasugamycin, 515; review of origin of resistant vars., 171; technique for assessing degree of resistance to, 1118a; use of non-irrigated nursery for breeding resistant plants, 1119; var. react. to, 171, 172, 1113v, 1537a, 1540, 1544, 2156.
— rosette virus on rice in the Philippines, relationships of, 169.
—, *Sclerospora macrospora* on, symptoms of, 518.
—, *Sphaerulina oryzina* on, perfect state of *Cercospora oryzae*, 179.
— straighthead, var. react. to, 1540.
— streak in Senegal, physiological, 1462.
— stripe virus on rice in Japan, 170; temperate Asia, 169; control, effect of, on yield, and forecasting of, 170; transmission of, by vectors, 170, 2706.
— stunt virus on rice in the Philippines, relationships of, 169.
—, *Tilletia barclayana* on, effect of plantvax and vitavax on, 1539.
— transitory yellowing virus on rice, relationships of, 168, 3102.
—, *Trichometasphaeria turcica* on, production of auxin by, 1113t.
— tungro virus on rice in the Philippines, 1115; genetics of, 1537e; leaf starch in relation to, 1537h; relationships of, 168, 1115, 2155, 3102; technique for purifying particles of, 1116; transmission of, by vectors, 1537e, 2155.
— — — strs. on rice, symptoms of and transmission of, by vectors, 513.

[Rice], *Ustilaginoidea virens* on, in India, 1865b; Venezuela, 1381c.
—, *Verticillium* on, resistance to, 478.
— virus diseases in Japan, 170; Trop. Asia, 168; conference on, at Int. Rice Res. Inst., 169; control, 169, 170; differentiation of, 168; effect of, on plant and vector, 169; on yield, 170; forecasting of, 170; transmission of, by vectors, 169, 170.
— — -like disease in Kenya, 2959b.
—, *Xanthomonas oryzae* on, in Asia (S.E.), 2480; India, 1547, 3110; anatomical study of, 2162; classification of strs. of, 183; control, 812, 1113s, 1864, 1872, 2480, 3110; effect of Cu spraying on, 1113s; of metabolite of, on growth, 1874; of N on susceptibility to, 2712; epidemiology of, 3110; resistance of, to strs. of, 3109; symptoms of, 3440; technique for inoculating, 1537d; var. react. to, 183, 1537d, 1547, 1873, 3110.
—, — — strs. on, in India and the Philippines, resistance to, 183.
—, — *oryzicola* on, in India, taxonomy of, 813; var. react. to, 1548.
— yellow dwarf virus on rice in Asia, 169; India, 1114; Japan, 170; effect of time of inoculation on, 1537g; effect of, on yield, 170, 1537g; forecasting of, 170; relationships of, 168; transmission of, by vectors, 170, 1114, 2155.
— -orange leaf virus on rice in Thailand, 168, 169, 1115; identical with rice tungro virus, ?513, 2155; relationships of, 168; symptoms of, 2155; transmission of, by vectors, 169, 1115, 2155.
— — stripe chlorosis ?virus in India, 169.
— — stunt ?virus in S. Vietnam, 169.
—, zinc deficiency in, causing khaira disease, 1113u.
Ricinus communis, *Cercospora coffeicola* on, 399d; survival of, in soil debris, 2169.
— —, — *ricinella* on, in Colombia, 1939.
— —, *Melampsora ricini* on, C.M.I. description of, 3731a.
— —, *Sclerotinia ricini* on, in Colombia, 1939.
Rimocidin against plant diseases in Hungary, 1404.
Rishitin, new antifungal substance isolated from *Phytophthora infestans*-infected potato, 1407.
Robinia, bean yellow mosaic virus on, in Bulgaria, 1460.
— mosaic virus on *Robinia* in Hungary, *2568; Yugoslavia, 3589; review of, 1743a; transmission of, by vectors, 2568, 3589.
Rosaceae, *Ascochyta* on, in U.S.S.R., biology of, 2433.
—, plum line pattern virus on, 3156.
—, *Podosphaera tridactyla*, *Sphaerotheca macularis*, and *S. pannosa* on, C.M.I. description of, 3731b.
Rose (*Rosa*), *Coniothyrium* on, fungicidal properties of phytoncides of, 1148.
—, *Cylindrocladium scoparium* on, 1930.
—, *Diplocarpon rosae* on, factors affecting, 1589.
—, *Gnomonia rubi* on, 2357d.
—, *Griphosphaeria corticola* on, in Scotland, 1746c.
—, *Macrophoma camarana* on, resemblance of symptoms to *Leptosphaeria coniothyrium*, 549.
— mosaic virus, apple mosaic virus identical with, serology of, 2651.
[Rose mosaic virus], rose yellow vein mos virus different from, 230.
— — — on cucumber, 843.
— mottled mosaic virus on rose, hosts a symptoms of, 2765.
—, *Phragmidium disciflorum* on, in U.S.S. morphology and symptoms of, 2366.
—, — *mucronatum* on, control, 1580.
—, — *tuberculatum* on, in U.S.S.R., 1164.
—, *Prunus* necrotic ring spot virus on, in U.S causing mosaic, 401b.
—, *Sphaerotheca humuli* on, control, 1401.
—, — *pannosa* on, in Netherlands, 3459h.
—, — — var. *rosae* on, in U.S.S.R., 1164, 2 control, 1164, 2366; evaluation of fungici against, 20; morphology and symptoms 2366.
—, strawberry latent ring spot virus on, tra mission of, by nematodes, 1060.
— streak virus, rose yellow vein mosaic vir different from, 230.
*— — — on rose in S. Africa, 1909.
— virus diseases, symptoms of, 1163.
— wilt virus, rose yellow vein mosaic vir different from, 230.
— yellow mosaic virus on rose in U.S.A., eff of heat treatment on, 401b.
— — vein mosaic virus, differentiation of, fr other rose viruses, 230.
Rosellinia aquila, comparison of hosts a morphology of, with *R. herpotrichioid* 2850.
— *arcuata* on tea, 1962.
— *bunodes* on coffee, 1134, 1135.
— *herpotrichioides*, comparison of hosts a morphology of, with *R. aquila*, 2850.
— *necatrix*, inhibition of *Trametes sanguinea* b 2304.
— — on almond, 2215.
— — on apple, 3154.
— — on fruit trees and ornamentals, 3064.
— *pepo* on coffee, 1135.
— *quercina*, comparison of hosts and morp ology of, with *R. thelena*, 2850.
— *thelena* on oak, 2850.
Roselliniaceae on fruit crops, 1598.
Rottboellia exaltata, sugarcane mosaic virus o 2250.
Rowan, see *Sorbus aucuparia*.
Rubber (*Hevea brasiliensis*), B toxicity and C deficiency in, 616.
—, *Colletotrichum crassipes* and *C. dematiu* on, in Malaysia, 3059b.
— diseases in Mexico, account of econom importance of, 2820; control, 2820, 282 factors affecting and symptoms of, 2820.
—, *Dothidella ulei* on, effect of butyl 2,4,5-T diesel oil and pentachlorophenol on folia of, 880e.
—, *Fomes lignosus* on, 615; control, 125 3549d; identification of, 3549d.
—, — *noxius* on, in Malaysia, 880a; contro spread, and symptoms of, 615.
—, *Gloeosporium alborubrum* on, in Ceylo 299; Malaysia, 1258, 1958; aerial sprayi against, 1258; control, 1258, 1958; effect light on spore germination of, 299; facto affecting sporulation of, 3549b; inhibition c 880d.
—, *Glomerella cingulata* on, in Malaysi 3059b.
—, *Helminthosporium heveae* on, in Malaysi 880c; control, 880c, 1256.

ubber], *Hypoxylon rubiginosum* on, in India, 655.
Oidium heveae on, control, 1258; factors affecting, 3549a.
patch canker, *Phytophthora palmivora* str. associated with, 3550.
Phytophthora on, in Ceylon, 2823; Malaysia, 1258; aerial spraying against, 1258; control, 1258, 2823; technique for recovering species pathogenic to, 1657.
, — *meadii* on, in Ceylon, 3549c; Thailand, (?)2822; identification of races of and overwintering sites of, 3549c.
, — *palmivora* on, in Malaysia, 880b, 3550; Thailand, (?)2822; inoculation of, 880b.
root diseases, control, 881.
ibus stunt virus on raspberry, 262.
idaeus, see Raspberry.
occidentalis, see Raspberry.
— *strigosus*, *Phyllosticta argillacea* on, in U.S.A., 87.
ursinus var. *loganobaccus* see Loganberry.
Rudbeckia, *Mycosphaerella ligulicola* on, 1154.
ussula in Europe and N. Africa, review of, 52.
usts, see Uredinales.
ye (*Secale cereale*), barley stripe mosaic virus on, 3427.
-, *Calonectria nivalis* on, in Pacific Northwest, 2681; control, 146; ecology of, 2681; effect of thiabendazole and furidazole on, 1819; resistance to, 2661; ?significance of perithecia of, 2681; var. react. to, 1859.
-, *Cercosporella herpotrichoides* on, effect of temp. on, 783.
-, *Claviceps purpurea* on, in U.S.S.R., factors affecting, 1478; alkaloid production by and infectivity of, 1419; properties of new str. of, 1104.
- diseases in Argentina, severity of, 2117; control, symptoms of, 1473; review of, 100.
-, *Erysiphe graminis* on, factors affecting, 1820.
-, *Exosporium pampeanum* on, in Argentina, resemblance of, to *E. nattrassii*, 1512.
- foot rot, 1094.
- frost damage, review of, 100.
-, *Puccinia agropyri* on, resistance to, 95.
-, — *graminis* on, in Canada, 3075; photochemical activity of chloroplasts in, 2694; prevalence of physiologic races of, 3404.
-, — *recondita* on, in U.S.S.R., forms of, 1815; photochemical activity of chloroplasts in, 2694.
—, *Pythium myriotylum* on, susceptibility to, 2434.
-, rice hoja blanca virus on, transmission of, by vectors, 3103.
-, *Tilletia contraversa* on, in Switzerland, 1809.
-, *Typhula incarnata* and *T. ishikariensis* on, resistance to, 2661.
-, wheat stunt virus on, incidence of, 1474.

-3, fungitoxicity of, 2982.
accharomyces cerevisiae, inhibition of, by mushroom, 2954.
- —, mechanisms of genetic changes in, 175.
- —, technique for separating ascospores and diploid cells of, 2088.
- *pastorianus*, effect of folpet on, 3688a, b.
- —, factors affecting toxicity of cycloheximide derivatives to, 746.
- *vini*, mechanisms of genetic changes in, 175.
accharum officinarum, see Sugarcane.
Sadoplan 75, see Thiram.
*Safflower (*Carthamus tinctorius*), *Corticium solani* on, in U.S.A., factors affecting, 282.
—, *Phytophthora drechsleri* on, effect of irrigation on, 592; host-parasite relationship in, 3527.
—, *Puccinia carthami* on, in Mexico, 3177; control, 3176, 3177; distribution, spread, and symptoms of, 3176.
Saintpaulia, *Erwinia* on, 2357c.
Salix, *Ciborinia foliicola* on, in Canada, 643d.
—, *Cryptodiaporthe salicella* on, in Canada, imperfect and perfect states of, 643b.
—, fungi on, in France, symptoms of, 336.
—, *Godronia fuliginosa* on, 3588.
—, *Marssonina salicicola* on, in U.K., 3219.
—, *Nectria galligena* on, initial establishment and penetration of, 1978.
—, *Physalospora miyabeana* on, in Scotland, 1746d.
—, *Uncinula salicis* on, in Canada, 2562d.
—, *Venturia chlorospora* on, in Scotland, 1746d.
Salsola kali, *Cercospora beticola* on, 2314.
Sambucus, *Phoma exigua* var. *sambuci-nigrae* on, 1442.
*—, tobacco mosaic virus on, transmission of mechanically, 1052.
Sandalwood (*Santalum album*) spike virus on *Lablab niger*, 1312.
— — — on sandalwood in India, inclusion bodies in leaf epidermis cells of, 2855; purification of viral protein in, 1979; transmission of, by sap, 1312.
— — — on *Stachytarpheta indica*, 1312.
Santalum album, see Sandalwood.
Santar M against *Nectria galligena* on apple, 3302a.
**Sapindus*, *Mycosphaerella sapindicola* on, in India, 3590.
Saprolegnia, morphology of zoospores of, 2085.
Saussurea candicans, *Alternaria tenuis* on, in U.S.A., introduced from abroad, 2437.
Schizaphis graminum transmitting maize mosaic virus, 148, 149.
Schizophyllum commune, cellobiose as paramorphogen in, 1778.
— —, ecology of, 930.
— —, effect of air-pressure on spore discharge in, 2967.
— —, genetics of, 3378.
— — on stone fruit, 1613.
— — on timber, 1335, 2285, 3607.
Scilla hyacinthoides, *Uromyces reichertii* on, in Israel, 137.
Scirrhia pini on pine, see Pine.
— —, world distribution of, 921.
Scleroderma cepa and *S. verrucosum* on *Eucalyptus*, forming mycorrhiza, 1003.
— *vulgare*, effect of simazine on, 749.
Scleroderris lagerbergii on pine, see Pine.
— — on spruce, 2879.
Sclerophoma pithyophila on *Cupressus lusitanica*, 1379e.
*— — on pine, 2562t.
— — on *Pseudotsuga menziesii*, 3240.
Sclerospora graminicola in India, hosts of, 1113p.
— — on *Pennisetum typhoides*, 1113i, 1533, 3100.
— *macrospora*, electron microscopy of, 2627.
— — on rice, 518.
— — on sugarcane, 1259b.
*— — on wheat, 3088.

[*Sclerospora*] *rayssiae* var. *zeae* on maize, 2705.
— *sacchari* on maize, 1109, 2705.
— — on sorghum, 3305c.
— — on sugarcane, 1266.
— *sorghi* on sorghum, 1113 l, 2359c, 2587a.
Sclerotinia borealis, effect of temp. on growth of, 978i, 2612.
— — on wheat, 2680.
*— *bulborum* on tulip, 3473.
— *convoluta* on *Iris*, 839.
— *cydoniae* on fruit trees, 3486.
— *draytonii* on *Gladiolus*, 2182.
— — on *Iris*, 2366.
— *fructicola*, factors affecting production of stromata and microconidia of, 1779.
— —, isolation of metabolite of, 1380e.
— — on apple, 2201.
— — on bean, 1420.
— — on pea, 758, 1420, 3666t.
— — on peach, see Peach.
— — on pear, 2201.
— — on stone fruit, 2032q, 3157; stomatal rind formation in, 3352.
— *fructigena*, non-utilization of pisatin by, 1722.
— — on apple, 850, 3149.
— — on fruit trees, 3486.
— — on plum, 1615.
— *fuckeliana*, absence of, in Bulgaria, 453.
— *homoeocarpa* on *Agrostis*, 2590d, 2745.
— — on *A. palustris* and *A. tenuis*, 2744.
— *laxa* on almond, 2770.
— — on apricot, 1924.
— — on cherry, 1404.
— — on fruit trees, 3486.
— — on plum, 1615.
— —, technique for studying spore germination of, 59.
— —, toxicity of, D735 to, 739.
— *libertiana*, factors affecting formation of ascus state of, 2404.
— *linhartiana* on quince, 397h.
— *mali* on apple, 3150.
— *minor* on lettuce, 2343.
— — on radish, 2356d.
— — on sunflower, 1222.
— *ricini* on *Ricinus communis*, 1939.
— *sclerotiorum*, *Acrostalagmus roseus* and *Coniothyrium minitans* on sclerotia of, 1173b.
— —, effect of *Bacillus licheniformis* and *B. subtilis* on growth and sclerotium formation by, 3363.
— —, electron micrography of, 2624.
— —, method for predicting occurrence of, 1073.
— — on bean, 1352.
— — on *Chrysanthemum*, 3467.
— — on lemon, 525.
— — on lettuce, 2343, *2359a.
— — on orange, 525.
— — on Ranunculaceae, 539.
— — on rape, 1998.
— — on soybean, 1939.
— — on sunflower, 1222.
*— — on tomato, 3218.
— —, production of pectolytic enzymes by, 3719.
— —, *Rhizopus stolonifer* and *Sporotrichum carnis* on sclerotia of, 1173b.
— *squamosa*, culturing of, 2590k.
— — on onion, see Onion.
— *trifoliorum*, *Acrostalagmus roseus*, *Coniothyrium minitans*, *Rhizopus stolonifer*, and *Sporotrichum carnis* on sclerotia of, 1173b.
[*Sclerotinia trifoliorum*], effect of O deficienc on growth of, 1173c.
— —, factors affecting growth of, 1173c.
— —, inhibition of, by quintozene, 1173c.
— — on clover, see Clover.
*— — on vetch, 2490e.
Sclerotiniaceae, toxicity of oxathiin fungicide to, 978b.
Sclerotium cepivorum, germination of sclerot of, induced by *Allium* extracts, 3648.
— — on garlic, 2932, 3611.
— — on leek, 2932.
— — on onion, see Onion.
— *rolfsii*, accumulation and translocation o P-32 in sclerotia of, 2067.
— —, basidial formation by, 2604.
— —, culture of, 428, 753.
— —, development of sclerotia of, 3727.
— —, effect of atrazine on growth of, 430 *Bacillus licheniformis* and *B. subtilis* o growth and sclerotium formation by, 3363 plant residues and soil microorganisms o parasitic and saprophytic activities of, 429.
— —, enzymatic maceration of plant tissue by 3666i.
— —, enzyme activity in sclerotia of, 3006.
— —, hosts of, 1381i, 1810.
— — in soil, see Soil.
— —, inhibition of, by difolatan and quinto zene, 3305a.
— —, method for predicting, 1073.
— —, natural melanins of, 3351.
— — on bean, 1381k.
— — on beet, 3061.
— — on coffee, 1558.
— — on *Eleusine coracana*, 1113o, q.
— — on *Eriobotrya japonica*, 3169.
— — on groundnut, 1731a, 1939.
— — on *Laurus nobilis*, 2501.
— — on soybean, 1939.
— — on sunflower, 1222.
— — on tomato, 896.
— — on wheat, 1845, 2132, 3083.
— —, respiration of sclerotia of, 754.
— —, structure and synthesis of β-D-glucan of, 3353.
— —, X-ray analysis of hyphal and sclerotial walls of, 3726.
— *tuliparum* on tulip, 3473.
Scolecotrichum graminis on *Bromus*, 1168a.
Scrophulariaceae, fungi on, 2622.
Scytalidium, inhibition of *Poria carbonica* on *Pseudotsuga menziesii* by, 2570.
Seaweed, hydrolysed, see Maxicrop.
Secale cereale, see Rye.
Seed health, tests for, 7, 476, 1071.
Selenophoma bromigena on *Bromus inermis* 1169.
Selinon against *Agrobacterium tumefaciens* on grapevine, 2541.
Semicarbazone ineffective against *Cronartium comptoniae* and *C. quercuum* on pine, 3233.
Senecio, potato virus Y and tobacco etch virus can infect, 1455.
— *cruentus*, see Cineraria.
— *vulgaris*, *Arabis* mosaic virus on, transmission of, by seed, 3508.
— —, symptomless hosts of beet mild yellows virus, 1708.
Septogloeum gillii, association of, with *Glomerella cingulata* on *Arceuthobium americanum* 337.

ptomyxa affinis, transformation of steroids by spores of, 2065.
tulasnei on *Acer*, 643c.
ptoria, C.M.I. description of, 42.
and septorioid fungi on Gramineae in Norway, monograph on, 2081.
apiicola on celery, see Celery.
arabidis on *Arabis pterosperma*, 3623.
caraganae on *Caragana arborescens*, 643d.
dauci on carrot, 1464.
gladioli on *Gladiolus*, 544.
macropoda var. *septulata* on *Poa pratensis*, 2509.
nodorum, see *Leptosphaeria nodorum*.
pastinacae on parsnip, 1464.
pisi on *Vicia villosa*, 1168b.
ribis on gooseberry, 2772.
sisymbrii on *Sisymbrium columnae*, 3623.
tritici f.sp. *avenae* on oats, 1168a.
— var. *lolicola* on *Lolium multiflorum*, 1168a.
umbelliferarum on caraway and coriander, 1464.
Sequestrin 138 Fe against iron deficiency in apple, 567.
Sequoia gigantea, *Cercospora cryptomeriae* on, in Japan (?)introduced from N. America, synonymous with *C. sequoiae*, 1327.
Serpula lacrimans, effect of temp. on growth of, 1417.
— on timber, 1332, 2303.
Serratia marcescens on cowpea, 2373.
Sesame (*Sesamum indicum* and *S. orientale*), *Alternaria* on, in Venezuela, 1381h.
— angular bacterial rot in Colombia, 1939.
—, *Cercospora sesami* on, in Colombia, 1939; Venezuela, effect of, on yield, and var. react. to, 1381h.
—, *Corticium solani* and *Corynespora cassiicola* on, in Colombia, 1939.
— diseases in Italy, 1807.
—, *Fusarium* on, in Colombia, 1939.
— leaf curl virus on sesame, control and var. react. to, 2800.
—, *Myrothecium roridum* on, in India, 868.
—, *Phoma* on, var. react. to, 1381b.
— phyllody virus on *Brassica* and *Crotalaria*, 3254.
— on sesame, control and var. react. to, 2800.
—, *Phytophthora* on, var. react. to, 1381b.
—, — *nicotianae* on, in Iran, 3063b.
—, *Pseudomonas sesami* on, in Brazil, 869; India, *1942; study on, 869.
— virus disease in India, symptoms and transmission of, 3179.
— wilt in Colombia, 1939.
—, *Xanthomonas sesami* on, transmission of, by seed, 593; var. react. to, 2230.
Setaria italica, *Cochliobolus setariae*, *Curvularia*, *Fusarium oxysporum*, and *Pyricularia setariae* on, control, 2154.
—, *Pseudomonas rubrilineans* not infecting 804.
— *lutescens*, maize virus can infect, 150.
— *verticillata*, *Sclerospora graminicola* on, in India, 1113p.
— *viridis*, maize dwarf mosaic virus on, 2144.
Sewage, fungi in, growth and metabolism of, 2392.
Shell copper against *Cercospora nicotianae* on tobacco, 2831.
— DD, effect of, on mycorrhiza of forest trees, 1410.
Shepherdia argentea, *Cylindrosporium* on, control, 335.
Shillagene against *Xanthomonas oryzae*, 3339.
Shirlan WS against *Ceratocystis paradoxa* on pineapple, 3513.
Siaprit P.S. against *Botrytis cinerea* on grapevine, 397 l.
Simazine against *Cercosporella herpotrichoides* on wheat, 2678.
—, effect of, on ectotrophic mycorrhiza of pine and spruce, 749; on *Gibberella zeae* on cultivated plants, 2044; on maize dwarf mosaic virus on maize, 3093; on *Scleroderma vulgare*, 749; on *Tricholoma pessundatum*, 749.
— in combination, effect of, on soil microorganisms, 2075.
Sinapis alba, *Alternaria brassicae* and *A. tenuis* on, control, 940; factors affecting discolouration of seeds of, 940.
Sirophoma capsici on *Capsicum*, 720.
Sisal (*Agave sisalana*) korogwe leaf spot, 538b.
— parallel streak, factors affecting, 2358e.
— zebra disease, study on, 538a.
Sistan as soil disinfectant, 3127.
Sisymbrium columnae, *Septoria sisymbrii* on, in India, description of, 3623.
Sitonia hispidula, relationship of, to incidence of *Fusarium* on clover, 2517.
SMDC, see Vapam.
Sodium arsenite, use of, for killing potato haulms, 1235c; for poisoning rubber root stumps, 1257.
— chlorate, use of, for killing potato haulms, 1235c.
— dichlordon, effect of, on *Gibberella zeae* on cultivated plants, 2044.
— diethyldithiocarbamate, fungitoxicity of, 2041.
— diethylthiocarbamate as seed treatment for wheat, 2446.
— fluoride against *Coniophora puteana*, *Fomes fomentarius*, and *F. pinicola*, 1702.
— hexametaphosphate against *Botrytis*, *Penicillium expansum*, and *Rhizopus stolonifer* on cherry, 1925.
— hypochlorite against *Fusarium roseum* and *F. solani* on cantaloupe, 2582.
— as seed treatment for groundnut, 2587c; *Setaria italica*, 2154; *Sinapis alba*, 940.
— nitrate against *Corticium fuciforme* on turf, 1592.
— *o*-phenylphenate against *Ceratocystis paradoxa* on pineapple, 3513; *Guignardia citricarpa* on orange, 1127; *Penicillium digitatum* and *P. italicum* on citrus, 3442.
—, see also SOPP.
— pentachlorophenate against *Nectria galligena* on apple, 2200.
— tetraphosphate against *Botrytis*, *Penicillium expansum*, and *Rhizopus stolonifer* on cherry, 1025.
— trichloroacetate, effect of, on development of *Pencillium* and *Trichoderma* in soil, 1027.
— tripolyphosphate against *Botrytis*, *Penicillium expansum*, and *Rhizopus stolonifer* on cherry, 1925.
Sogata cubana and *S. orizicola* transmitting rice hoja blanca virus, 1538.
Sogatodes cubanus transmitting rice hoja blanca virus, 3103.
— *oryzicola* transmitting rice hoja blanca virus, 3103, 3439.

Soil, *Actinomucor elegans* in, effect of dexon on, 1427.
—, — *repens* in, effect of soil sterilization on, 3018.
—, actinomycetes in, in India (S.), correlation between antagonism of and physical and chemical properties of soil, 3369; effect of heat treatment on, 1428; of herbicides on, 1027, 2075; inhibition of, 3025; selectivity and toxicity of disinfectants to, 1026a.
—, *Aphanomyces cochlioides* in, Chile, control and distribution of, 2902; effect of crop residues on, 440.
—, apparatus for collecting cores of, 2409.
—, *Armillaria mellea* in, in Rhodesia, 3020; effect of fungicides on, 3019; inhibition of rhizomorph development by, 3020; stimulation of rhizomorph development by *Aureobasidium pullulans*, 2072.
—, *Arthrobotrys conoides* in, use of fluorescent brightener for studying effect of fungistasis on, 3028.
—, *Aspergillus* in, in U.S.S.R., 2068; antagonism of, to predacious fungi, 441; effect of culture in, on taxonomic characters of, 1025.
—, — *flavus* in, technique for isolating, 58.
—, — *melleus* and *A. terreus* in, effect of, on *Verticillium dahliae* on cotton, 3447.
—, *Bacillus cereus* and *B. megaterium* in, antagonism of, to predacious fungi, 441.
—, — *mesentericus* in, antagonism of, to predacious fungi, 441; effect of herbicides on antagonists of, 2075.
—, — *subtilis* in, antagonism of, to predacious fungi, 441; effect of heat treatment on inhibition of *Corticium solani* by, 1428.
—, bacteria in, effect of heat treatment on, 1428; of herbicides on, 1027, 2075; of plant toxins on, 3366; lysing *Fusarium bulbigenum* var. *blasticola*, 3242; mycolytic strs. of, 2074; recolonizing chemically disinfected soil, 1026b; selectivity and toxicity of disinfectants to, 1026a.
— biology, book on, 1780.
—, *Botrytis cinerea* in, effect of soil sterilization on, 3018.
—, *Cephalosporium* in, effect on taxonomic characters of, 1025.
—, *Cercospora antirrhini* in, survival of, 1149.
—, *Cercosporella herpotrichoides* in, soil disinfection ineffective against, 2584n.
—, *Chaetomium* in, effect on taxonomic characters of, 1025.
—, *Cladosporium* in, effect of herbicides on, 1027.
—, — *resinae* in, in Australia, perfect state of, 3344.
—, *Cochliobolus miyabeanus* in, saprophytic activity of, 3022.
—, — *sativus* in, chlamydospore formation in conidia of, 3084; colonization of wheat straw by, 3085; propagule assay for, 760; saprophytic activity of, 3022; survival of, 40.
—, Conference on microenvironment and biology of, 3364.
—, *Coniophora puteana* in, inhibition of, by *Trichoderma viride*, 648.
—, *Corticium praticola* in, inhibition of, by leachates, 1028.
—, — *solani* in, in Chile, 2902; Ireland, behaviour and persistence of, 1784; control, 38, 2902; distribution of, 2902, 3367; effect of age of inoculum on virulence of, 761; c chloronitro- and chlorobenzenes on, 2413; c heat treatment on inhibition of, by *Bacillu subtilis*, 1428; identifying mycelium o 3669a; saprophytic survival of, 3021.
[Soil] cultures, new lid for, 2418.
—, *Cunninghamella echinulata* in, interaction o with *Fusarium solani* on potato, 2816.
— disinfectants, evaluation of, 17.
— disinfection against *Agrobacterium tume faciens* on cherry, 3504; *Arabis* mosaic viru 859; *Armillaria mellea* on citrus, 1836 *Botrytis cinerea* on lettuce, 2343; cabbage a cauliflower root rots, 3620; *Cercospore herpotrichoides*, 2584n; *Corticium solani* o cabbage, 1336; on cotton, 3452; on *Hibiscu cannabinus*, 2730; on potato, 613; *Coryne bacterium michiganense* on tomato, 640 *Cylindrocladium floridanum* and *C. scoparium* on nursery crops, 3461; damping-off of pine 3595a; *Fomes* on *Hevea* rubber, 3549 fruit tree replant disease, 1599; fungi on app 1377m; groundnut, 1731b; *Fusarium*, 131 3594; on pea, 3265; *F. avenaceum* on carn tion, 3126; *F. oxysporum* on pea, 6946; *F.* f.sp. *cumini* on cumin, 279; *F. o.* f.sp. *pisi* o pea, 1718; *F. o.* f.sp. *vasinfectum*, 1895; *F. roseum* on carnation, 2356e; *F. solani* o *Matthiola*, 3126; *F. s.* f.sp. *pisi* on pea, 1718 *Gibberella fujikuroi* on *Freesia*, 390g; *Macro phomina phaseoli* on *Abies grandis*, 355; o groundnut, 377; on pine, 355; *Nectria radici cola* on cyclamen, 3459c; nematodes, 694 2589; *Ophiobolus graminis*, 2584n; *Perono spora* on *Anemone*, 3127; *Phymatotrichum omnivorum*, 2491; *Phytophthora fragariae* o strawberry, 3301c; *P. infestans* on potato 597e; *P. lateralis* on *Chamaecyparis lawsoni ana*, 3466; *Plasmodiophora brassicae* o Cruciferae, 3617; *Poria hypolateritia* on tea 1962; *Pseudomonas syringae* on peach, 261 *Puccinia menthae* on peppermint, 3178 *Pyrenochaeta terrestris* on tomato, 391e *Pythium*, 1427; on pea, 1718, 3265; *Rhizoc tonia*, 1319; on pea, 3265; *Rosellinia arcuata* on tea, 1962; *Sclerotinia* on lettuce, 967; *S minor* and *S. sclerotiorum* on lettuce, 2343 *Sclerotium cepivorum* on onion, 2933a *Sphaerotheca fuliginea* on cucumber and squash, 3655; *Streptomyces scabies* o potato, 1377g; *Thielaviopsis basicola* o cyclamen, 1156, 3459c; *Tilletia contraversa* on wheat, 2357b; tobacco mosaic virus o tomato, 1675; *Ustilago nuda* on barley, 1852 (?)*Verticillium* on potato, 613; on tomato 639, 2356f; *V. alboatrum* on cotton, 3486 3117; *V. cinerescens* on carnation, 2356e wheat mosaic virus, 3074.
— —, apparatus for, 2356b.
— — by atrazine, 3093; bacteria in compost 1141; botran, 2933a; brassicol, 967, 1377m 3595a; captan, 391e, 2356g; in combination 967; carbathion, 639, 1336; 1-chloro-2 nitro-propane, 1718; chloropicrin, 859, 951 1026a, 1599, 1675, 3127; in combination 3074; cryptonol, 1156; dazomet, 951, 2584n DD, 694b, 859, 951; in combination, 2356e f; dexon, 1427, 3301b, c; 1,2-dibromo-3 chloropropane, 261; difolatan, 597e; di methyl sulphoxide in combination, 3617 disulfoton, 3093; dithianon, 391e; di-trapex 2356f; DNB, 1374g; Dupont 1991, 2486 3265, 3461, 3655; euparen, 391e; formalde

hyde, 390g, 951, 1675, 3126, 3127; fumazone, 3595a; hexachlorobenzol, 2357b; lanstan, 3436, 3617; maneb, 3178; in combination, 3093; MBR–CP and MBR–CP–PBR, 355; mercuric chloride, 2933a; meta-sodium, 390g; metham-sodium, 279; methyl bromide, 640, 897, 1026a, 1675, 1886, 1962, 2343, 2356e, f, 2849, 3459c, i, 3594; in combination, 3074; methyl isothiocyanate compound, 1026a; mylone, 694b, 2491, 3594; nabam, 3466; nemagon, 1895; nitrafen, 612; ortho-phaltan, 1156; petroleum growth substances, 612; plantvax, 1852; propazine, 3093; quintozene, 377, 2933a, 3617, 3620; quintozene-Borzesti, 1377g; sistan, 3127; sulphur, 1377g, 3549d; TCTNB, 1374g; temik 10G, 3595a; terraclor, 967, 3436; in combination, 967; thiabendazole, 3117; thiram, 2356g, 2730; trizone, 1319, 3504; unifume, 3595a; vapam, 694b, 1731b, 2491, 3126, 3127, 3594, 3620; in combination, 694b, 2356e, f; vidden D, 694b; vitavax, 3452; vorlex, 613, 1731b; zinc in combination, 3093.
Soil disinfection], conference on, 2356.
— —, effect of, on microbiological balance, 2356c. on mycorrhizal fungi, 2849.
— —, review of, 3017b.
— —, see also Soil sterilization.
—, *Drechslera halodes* and *D. tetramera* in, saprophytic activity of, 3022.
—, effect of air pollution on, 3309.
—, *Erwinia carotovora* in, effect of sterilization on, 3018.
—, factors affecting antiphytopathogenic potential of, 3365.
— fungi in Hong Kong, 1423; Libya, 191; Poland, 1019; associated with citrus, 191; biological appraisal of, 759; characteristics of, 2356a; competition of, on agar plates, 2070; control, 2356a, 3017a, 3303; degradation of lignin by, 1782; detection and isolation of plant pathogenic, 2087d; effect of heat treatment on, 1428; of herbicides on, 393c; of litter on, 1020; factors affecting, 2356a; inhibition of, by plant toxins, 3366; by *Streptomyces rimosus*, 978d; of *Pythium graminicola* by, 1785; interactions of, with *Macrophomina phaseoli*, 2613; isolation of, 1781, 2069, 3016a, b; relationship between macroflora and, 1019; role of microbic population in survival of, 40; selectivity and toxicity of disinfectants to, 1026a; strip bait for studying, 1018; technique for studying lysis of, 2410.
— fungicides, physical aspects in relation to action of, 986m; technique for evaluating, 2616.
— fungistasis in Pakistan, 3026; factors affecting, 1432, 3730; mechanism of, 1433; sensitivity of spores to, 1431; techniques for investigating, 1432, 3028.
—, *Fusarium* in, in Hong Kong, 1423; U.S.S.R., 2068; effect of dexon on, 1427; of herbicides on, 1027.
—, — *avenaceum* and *F. culmorum* in, technique for isolating, 1781.
—, — *equiseti* in, in Israel, factors affecting, 1466; technique for isolating, 1781.
—, — *javanicum* in, in U.S.S.R., 2484.
—, — *oxysporum* in, in Lower Ivory Coast, 2073; U.S.S.R., 2484; effect of dexon on, 1427; of microbic population on survival of, 40; of oil palms on, 2073.
[Soil, *Fusarium oxysporum*] f.sp. *vasinfectum* in, in U.S.S.R., in relation to cotton wilt, 2484.
—, — *roseum* f.sp. *cerealis* 'Culmorum' in, effect of oats and wheat on, 3430.
—, — *solani* in, effect of fertilizers on, 1555; of Leguminosae on, 2073; propagule assay of, 760.
—, — — f.sp. *phaseoli* in, effect of CO_2 on germination of chlamydospores of, 2911; of carbohydrate amendments on, 2408a, b, c; of nutrients on lysis of, 1425; saprophytic multiplication of, 2615a.
—, *Gibberella fujikuroi* in, in U.S.S.R., 2484.
—, *Glomerella cingulata* in, effect of fungistasis on, 1431.
—, *Helminthosporium* in, effect on taxonomic characters of, 1025.
— micro-organisms in, in Australia and Bismarck Archipelago, 37; India, 439a, b; New Guinea, 37; association of, with root tips, 1023; effect of environment on, 3364a, b; of herbicides on, 2075; of, on plant growth and seed germination, 1424; on *Sclerotinia trifoliorum* on clover, 1173a; on *Sclerotium rolfsii*, 429; factors affecting, 808.
— — on chitin, 3024a, b.
—, *Monilia* in, interaction of, with *Fusarium solani* on potato, 2816.
—, *Mortierella* in, in Canada, technique for detecting, 2411.
—, — *vinacea* in, effect of, on *Corticium solani* and *Fusarium oxysporum*, 1318.
—, *Mucor* in, effect of irrigation on susceptibility to formaldehyde, 978q.
—, — *hiemalis* in, technique for isolating, 1781.
—, Mucorales in, effect of dexon on, 1427.
— mycoflora in U.S.S.R., distribution of, in different layers, 2068.
—, *Ophiobolus graminis* in, disinfection ineffective against, 2584n; technique for isolating, 1781.
—, *Penicillium* in, 2070; in U.S.S.R., 2068; antagonism of, to predacious fungi, 441; effect on taxonomic characters of, 1025; of herbicides on, 1027; of irrigation on susceptibility to formaldehyde, 978q; inhibition of *Fusarium solani* on potato by, 2816; microbial population and survival of, 40.
—, — *funiculosum* in, effect of, on *Verticillium dahliae* on cotton, 3447.
—, — *purpurogenum* in, effect of, on respiratory enzymes of pea and wheat, 3360.
—, — *waksmanii* in, effect of, on *Corticium solani* and *Fusarium oxysporum*, 1318.
—, *Phoma exigua* ff.sp. *exigua* and *foveata* in, in England and Scotland, 3546a.
—, — *foveata* and *P. solanicola* in, technique for recovering, 3190.
—, phycomycetes in, inhibition of, by plant toxins, 3366.
—, *Phymatotrichum omnivorum* in, control, 2491.
—, *Phytophthora* in, in U.S.A., 762.
—, — *cactorum* in, effect of herbicides on antagonists of, 2075.
—, — *cinnamomi* in, in Germany, 1374c; factors affecting, 1430; non-survival of, in winter, 1374c; technique for obtaining chlamydospores of, 444.
—, — *nicotianae* var. *parasitica* in, effect of fungistasis on, 1431; survival of, 1943.
—, plant residues in, phytotoxins produced by, 1429.

[Soil], *Pseudomonas phaseolicola* in, effect of soil sterilization on, 3018.
—, *Pyrenochaeta lycopersici* in, associated with tomato brown root rot, 3571.
—, pyrenomycetes in, technique for separating ascospores from, 1422.
—, *Pythium* in, in Canada, 2411; U.S.A., 762; technique for detecting, 2411.
—, — *aphanidermatum* in, in Chile, distribution of, 2902; effect of residues on, 442.
—, — *debaryanum* in, effect of, on *Aphanomyces euteiches* on pea, 1347.
—, — *sylvaticum* in, in U.S.A., 1029.
—, — *ultimum* in, in Chile, distribution of, 2902; effect of chloronitro- and chlorobenzenes on, 2413; of, on *Aphanomyces euteiches* on pea, 1347; factors affecting sporangial germination of, 443; inhibition of, by leachates, 1028.
—, *Rhizobium trifolii* in, 1172.
—, *Rhizopus* in, interaction of, with *Fusarium solani* on potato, 2816.
—, root-nodule endophytes of alder and *Myrica gale* in, 3348.
—, *Sclerotium rolfsii* in, effect of amendments on, 2412; of fertilizers on germinability of sclerotia of, 2071; of *Trichoderma viride* on saccharose activity in, 3368; technique for estimating saprophytic activity of, 2614.
— sterilization against cucumber root rot pathogens, 719; *Erwinia carotovora* on cyclamen, 3315; *E. chrysanthemi* on carnation, 2498; *Fusarium roseum* on carnation, 2356e; *Gibberella fujikuroi* on *Freesia*, 390g; *Nectria radicicola* on cyclamen, 3459c; *Pyrenochaeta terrestris* on onion, 2930; *Thielaviopsis basicola* on cyclamen, 3459c; tomato brown root rot, 3571; *Verticillium* on tomato, 2356f; *V. cinerescens* on carnation, 2356e.
— —, apparatus for, 3017a.
— — by steam, 88, 719.
— — ineffective against *Cylindrocladium scoparium* on spruce, 3243.
—, *Streptomyces* in, in U.S.S.R., production of antibiotics by, 1139, 1140.
—, *Thelephora terrestris* in, isolation of, 3729.
—, *Thielaviopsis basicola* in, effect of amendments on, 2615b; of chitinase on chlamydospore germination of, 1426; of nutrients on lysis of, 1425; propagule assay of, 760.
—, thiram residues in, effect of, on *Pythium ultimum* on pea, 41.
—, tobacco rattle virus in, 394e, 2586e.
—, *Trichoderma* in, effect of dexon on, 1427; of herbicides on, 1027; of irrigation on susceptibility to formaldehyde, 978q.
—, — *hamatum*, *T. piluliferum*, and *T. polysporum* in, antagonism of, to *Fomes annosus* on pine, 348a.
—, — *viride* in, 2070; antagonism of, to *Fomes annosus* on pine, 348a, b; effect of amendments on, 2412; of chloronitro- and chlorobenzenes on, 2413; interaction of, with *Fusarium solani* on potato, 2816.
—, *Trichometasphaeria turcica* in, saprophytic activity of, 3022.
—, *Trichothecium roseum* in, effect of, on *Verticillium dahliae* on cotton, 3447.
—, *Typhula idahoensis* in, survival of sclerotia of, 3409.
—, *Verticillium alboatrum* in, survival of propagules of, 3023.
[Soil, *Verticillium*] *dahliae* in, stimulation c by tetracycline, 2487; survival of, 40; viru ence of, 1137.
Solanaceae, belladonna mottle virus can infec 2649.
—, citrus exocortis virus on, transmission o by grafting, 523.
—, *Corynebacterium michiganense* on, 1972.
—, passion fruit woodiness virus can infec 271.
—, *Phytophthora* on, virulence of, 3611.
—, stolbur virus on, 3611.
α-solanine, fungitoxicity of, 3193.
Solanum, *Corynebacterium michiganense* o spec. react. to, 1972.
—, potato virus Y on, spec. react. to, 3537.
—, *Puccinia pittieriana* on, in Colombia, 31
—, tobacco mosaic virus str. U1 on, spe react. to, 2547.
— *andigenum*, *Pseudomonas solanacearum* o 1955.
— *chacoense* as indicator for potato virus 2236.
— *demissum* as indicator for potato viruses and Y, 1231.
— *melongena*, see Eggplant.
— *phureja*, *Pseudomonas solanacearum* o resistance to, 1955.
— *rostratum* as indicator for potato virus strs., 1948.
— *tuberosum*, see Potato.
Solidago altissima and *S. canadensis*, *Colec sporium asterum* on, in U.S.A., life cycle an development of, 3235.
Sophocarpin, effect of, on pectinase activit and respiration of *Verticillium dahliae*, 1014
SOPP in combination against fungi on citrus 2717.
Sorbic acid against *Fusarium* and *Verticillium* on cotton, 3118; *V. dahliae* on cotton, 1138
**Sorbus aucuparia*, *Erwinia amylovora* on, i Canada, 2562c.
Sordaria fimicola, inhibition of, by potassium cyanide, 36.
— —, spore discharge in, 2967.
Sorghum (*Sorghum vulgare*), *Cercospora sorgh* on, var. react. to, 1113 l.
— chlorosis virus on sorghum in India, char acteristics of, 3438.
— concentric ring spot virus on sorghum i S. Africa, technique for isolating, 301.
—, *Colletotrichum graminicola* on, in India *3099; appressoria in, 3744; relationship o root injury to, 806.
—, *Curvularia* on, in India, 2153; Senegal 1462; effect of hypochlorite pretreatment on 2153.
—, effect of seed treatment on viability of seed in storage, 1113j; of soil micro-organisms o germination and growth of, 1424.
—, *Fusarium* on, in Senegal, 1462.
—, — *oxysporum* and *Gibberella fujikuroi* on, i India, effect of hypochlorite pre-treatmen on, 2153.
—, *Gloeocercospora sorghi* on, 594; in India 1113i; germination and overwintering o sclerotia of, 1536; var. react. to, 1113 l.
—, *Helminthosporium* on, in Senegal, 1462.
*—, *Macrophomina phaseoli* on, in Austria severity of, 2030.
—, maize dwarf mosaic virus on, 2144; i U.S.A., 2695; effect of K deficiency o 1113f; effect of, on chloroplasts and photo

synthesis, 2145b; on yield, 1113f; factors affecting, 2695.
orghum], *Penicillium* on, in Senegal, 1462.
, *Periconia circinata* on, C.M.I. description of, 3030.
, *Phoma insidiosa* on, 2154.
, *Physopella zeae* on, biological control and description of, 152b.
, pipecolic acid content in relation to disease resistance, 2158.
, *Pseudomonas rubrilineans* can infect, 804.
, *Puccinia purpurea* on, var. react. to, 1113 l.
, *Ramulispora sorghi* not infecting, 807.
, — — on, var. react. to, 2587a.
- red stripe virus on maize, 2146.
— — — — on sorghum in U.S.S.R., 3403.
-, *Sclerospora graminicola* on, in India, 1113p.
-, — *sacchari* on, mode of infection by, 3305c.
-, — *sorghi* on, in India, 1113p; var. react. to, 1113 l, 2587a.
-, *Sphacelia sorghi* on, factors affecting survival of, 2587a; production of dihydroergosine by, 2478.
-, *Sphacelotheca reiliana* on, penetration by, 2477; physiologic specialization in, 167.
-, — *sorghi* on, in Iraq, 166; Nigeria, 2587a; control, 3098; factors affecting, 511; var. react. to, 166, 3098.
-, sugarcane mosaic virus on, 1260, 2250.
—, *Tolyposporium ehrenbergii* on, in Iran, transmission of, by seed, 3097.
-, *Trichometasphaeria turcica* on, var. react. to, 1113 l.
-, wheat stripe mosaic virus on, in U.S.S.R., 3403.
— *bicolor* var. *technicum*, maize dwarf mosaic virus on, in U.S.A., 2695.
— *halepense*, *Colletotrichum graminicola* on, in India, 3099.
— —, *Helminthosporium rostratum* on, in India, 1113g.
— —, maize dwarf mosaic virus on, association between, 2144; effect of, on chloroplasts and photosynthesis, 2145b.
— —, maize mosaic virus on, transmission of, by vectors, 149.
— —, — virus on, in N.S.W., 2032e.
— — mosaic virus on maize, 1106.
— — — +maize stunt viruses on maize, 1106.
— —, sugarcane mosaic virus on, 2250; in U.S.A., 1260.
— *nitidum*, *Colletotrichum graminicola* on, in India, 3099.
— *sudanense*, see Sudan grass.
— *vulgare*, see Sorghum.
owbane (*Chenopodium murale*) mosaic virus, *Chrysanthemum* virus serologically related to, 390k.
— — — carnation 689 str. on carnation, 390i.
— — — *Chenopodium* star mottle str., carnation 689 str. related to, 390i.
oybean (*Glycine max*), *Alternaria tenuis* on, 3639.
-, bean pod mottle virus alone and+soybean mosaic virus strs. 1 and 2 on, effect of, on seed, 2919.
-, *Cephalosporium gregatum* on, isolation of, 3634.
-, *Cercospora kikuchii* on, in Colombia, 1939; Venezuela, *morphology and symptoms of, 1381g.
-, — *sojina* on, in U.S.A., 2921.
[Soybean], *Cochliobolus carbonum* on, physiology of resistance of, 2333.
—, *Colletotrichum truncatum* on, in Colombia, 1939.
—, *Corticium solani* on, in Colombia, 1939; U.S.A., *3635.
— cotyledon necrosis in U.S.A., 2922.
—, *Diaporthe phaseolorum* var. *sojae* and *Fusarium oxysporum* f.sp. *tracheiphilum* on, in Colombia, 1939.
—, *Glomerella glycines* on, in Colombia, 1939; Rhodesia, *2588a; U.S.S.R., 2920, *3066.
—, *Macrophomina phaseoli* on, in Colombia, 1939.
— mosaic virus on soybean in S. Africa, 1354; Venezuela, 1381m, 2011; control and factors affecting, 1354; morphology and var. react. to, 2011.
— — — strs. 1 and 2+bean pod mottle virus on soybean, effect of, on seed, 2919.
—, *Phakopsora pachyrhizi* on, 1355.
—, phosphorus toxicity to, control, 2578.
—, *Phytophthora cactorum*, *P. megasperma*, and *P. m.* var. *sojae* on, antifungal metabolites produced by, 2335; phytoalexin in relation to, 3666u.
—, pipecolic acid content in relation to disease resistance, 2158.
—, *Pseudomonas glycinea* on, in Yugoslavia, 703; control, 3637; population levels in relation to, 3636; var. react. to, 703.
—, *Sclerospora sorghi* on, in Rhodesia, 2359c.
—, *Sclerotinia sclerotiorum* on, in Colombia, 1939.
—, *Sclerotium rolfsii* on, in Colombia, 1939; susceptibility to, 1810.
—, tobacco ring spot virus on, 1803; transmission of, by seed, 2334.
—, *Verticillium* on, susceptibility to, 478.
*—, — *foexii* on, in U.S.S.R., 3066.
— virus diseases, 1381m.
—, *Xanthomonas phaseoli* var. *sojense* on, in Colombia, 1939; control, 3637; extracellular polysaccharides of, 3638; host-parasite interactions of, 2336.
Sphacelia sorghi on sorghum, 2478, 2587a.
Sphaceloma arachidis on groundnut, 707.
— *murrayae* on *Salix*, 336.
— *persea* on avocado pear, 3167.
Sphacelotheca destruens and *S. reiliana* on cereals, 3013.
— *reiliana* on maize, see Maize.
— — on sorghum, 167, 2477.
— —, physiology of, 2995.
— *sorghi* on sorghum, see Sorghum.
Sphaeropsidales on fruit, 1598.
Sphaeropsis tumefaciens on lime and *ortanique, 2958a.
Sphaerotheca on Ranunculaceae, 539.
— *fuliginea* on cucumber, see Cucumber.
— — on Cucurbitaceae, 1035b, 1364.
— — on squash, 3655.
— — f.sp. *cucurbitacearum* on cucumber, 387.
— *humuli*, see *S. macularis*.
— *macularis* on hop, 3524a.
— — on raspberry, 2219.
— — on Rosaceae, 3731b.
— — on rose, 1401.
— — on strawberry, 1211, 2219.
— *mors-uvae* on currant, see Currant.
— — on gooseberry, 20, 2531, 2773.
— *pannosa* on peach, 1743d.
— — on Rosaceae, 3731b.

[*Sphaerotheca pannosa*] on rose, 3459h.
— — var. *persicae* on peach, 260a, b.
— — — *rosae* on rose, 20, 1164, 2366.
Sphaerulina oryzina on rice, 179.
Spilocaea eriobotryae on loquat, 268.
Spinach (*Spinacia oleracea*), cucumber mosaic virus on, in Venezuela, susceptibility to, 3306.
— diseases, control, 3261.
*—, *Fusarium oxysporum* f.sp. *spinaciae* on, in U.S.A., 2316.
—, ozone injury to, 3702.
—, *Peronospora farinosa* on, f.sp. *spinaciae* proposed for, 1039.
—, *Pyrenochaeta terrestris* on, 2119.
— extracts, inhibition of potato virus X ring spot str. by, 470b; of radish mosaic virus by, 471.
Spinacia oleracea, see Spinach.
Spongospora subterranea on potato, 1376d, 1650, 2029.
— — transmitting potato mop-top virus, 3301k.
Sporidesmium sicynum on fig, 1213.
Sporoschisma mirabile on fruit, 1598.
Sporotrichum carnis, inhibition of, by quintozene, 1173c.
— — on fungal sclerotia, 1173b.
Spraying apparatus, 416, 1888, 2960e.
Spruce (*Picea*), *Arceuthobium americanum* on, *Glomerella cingulata* parasitizing in Canada, 337.
—, *Armillaria mellea* on, in Germany, 2882b.
—, *Aspergillus fumigatus* and *A. niger* on, effect of, on seedlings of, 1326.
—, *Bifusella crepidiformis* on, in U.S.A., 358.
*—, *Ceratocystis bicolor* on, in Europe, 646.
—, — *europhioides* and *C. penicillata* on, in Germany, isolation of, from *Ips*-infested bark, 646.
—, *Coniophora puteana* on, rate of decay of, 3244.
—, *Coryne sarcoides* on, in Germany, 2882b.
—, *Cucurbitaria piceae* on, 359.
—, *Cylindrocladium scoparium* on, control and factors affecting, 3243.
— damping-off in Canada, control, 341.
— decay, evaluation of, 2882a.
—, effect of captan-50W on seed germination of, 2857; of pesticides on pollen germination of, 342.
—, *Fomes annosus* on, in Germany, 2882b; U.S.S.R., 1329; control, 1329; effect of resin on resistance to, 3229; factors affecting, 1329, 2882b; technique for studying, 3229.
—, — *fomentarius* on, biology of, 680, 1702; control, 1702.
—, — *pini* on, in U.S.S.R., 673.
—, — *pinicola* on, in U.S.S.R., 673; action of, on wood components, 674.
—, fungi on, in U.S.S.R., 673; effect of, on viability, 3219a.
—, *Fusarium* on, factors affecting, 3593.
—, — *bulbigenum* var. *blasticola* on, lysis of, by soil bacteria, 3242.
—, *Isthmiella crepidiformis* on, in Canada, 2562e.
*—, *Lophodermium darkeri* on, in N. America, 643b.
—, — *macrosporum* and *L. picea* on, in Germany, effect of light on, 357.
*—, *Lophophacidium hyperboreum* on, in Canada, 2562e.
—, *Mucor ramannianus* on, effect of root secretions on, 1326.
[Spruce] mycorrhiza, effect of simazine
749.
—, *Penicillium* on, effect of root secretions
1326.
—, — *canescens*, *P. cyclopium*, *P. martens*
and *P. purpurogenum* on, effect of, on seedlings, 1326.
—, *Phacidium abietis* on, 338.
—, *Polyporus tomentosus* on, in Canada, 92
1315; comparative susceptibility of roots
928; rate of decay of, 3244.
—, — — var. *circinatus* on, in Canada, 13
—, *Poria albidofusca* on, in U.S.S.R., 927.
—, *Rhizoctonia* on, in Norway, 1695.
—, *Rhizosphaera kalkhoffii* on, in German
effect of light on, 357.
— root rots in U.S.S.R., 673.
—, *Scleroderris lagerbergii* on, sporulation
2879.
—, *Thelephora terrestris* on, 3729.
—, *Valsa* on, in Canada, 1315.
Squash (*Cucurbita maxima*), cowpea chlor
mottle virus on, specific infectivity of, 33
—, *Erysiphe cichoracearum* on, effect of f
dazole and thiabendazole on, 1819.
—, *Fusarium solani* f.sp. *cucurbitae* on, degrad
tion of pectic substances by, 1367, 2583.
— mosaic virus, serotypes of, 2348.
—, *Mycosphaerella melonis* on, in New Zealan
2943.
—, *Pseudoperonospora cubensis* on, in S. Afric
969.
—, *Sphaerotheca fuliginea* on, control, 3655.
Stachybotrys on cellulose and paper, 2988.
— *atra*, inhibition of *Fomes igniarius* and *Pol*
porus glomeratus on *Acer saccharum* b
649.
Stachytarpheta indica, sandalwood spike viru
on, transmission of, by sap, 1312.
Stagonospora curtisii on *Narcissus*, 390f.
— *recedens* on clover, 1168b.
Statice, see *Limonium*.
Steam/air mixture for soil sterilization, 719.
Stemphylium botryosum, see *Pleospora he*
barum.
— — f.sp. *capsicum* on *Capsicum*, 3659.
— — f.sp. *lycopersici* on tomato, 3217.
— *consortiale* on apple, 2752.
— *floridanum* on ornamentals, 3346.
— *ilicis*, primary luminescence of, 460.
— *radicinum* on carrot, 2342, 3299i.
— *solani*, conidial formation in, 2405.
— —, distinction of *S. botryosum* f.sp. *capsicu*
from, 3659.
— — on *Capsicum*, 85.
— — on tomato, 85, *3066.
**Stenella aegles* on *Aegle marmelos*, 2798.
Stenotaphrum secundatum, *Ustilago affinis* o
in Brazil, 1168a.
Stereum frustulosum on beech, 2889.
— — and *S. gausapatum* on timber, 1993.
— *hirsutum* on ornamentals, 1147.
— — on trees, 1994.
— *purpureum* on peach, 396.
— — on plum, 1923.
— — on pome fruit, 396.
— — on stone fruit, 1613.
— *sanguinolentum*, decomposition of cellulo
by, 2406.
— — on *Abies grandis*, 2858.
— — on *A. lasiocarpa*, 2859.
— — on timber, 2285.
— *taxodii* on *Taxodium distichum*, 2883.

mina carpophila in Chile, 82.
– on almond, 1197, 2759.
– on peach, 396, 2759.
– on stone fruit, 1197.
aceae, key to, 3037.
bur virus, *Chrysanthemum* green flower and *fentha* enation viruses serologically related , 3526.
–, hosts of and transmission of, by vectors, 451.
– on *Capsicum* and eggplant, 2100.
– on potato, 288, 2100, 2427.
– on Solanaceae, 3611.
– on tomato, 1745f, 2427.
ne fruit, *Agrobacterium tumefaciens* on, node of infection and symptoms of, 3157.
–, *Blumeriella* on, control, 1743g.
–, *Ceratocystis fimbriata* on, control, 3496.
— diseases in Germany, causing bark and wood injury, 848.
–, *Polystictus cinnabarinus* and *P. versicolor* on, symptoms of, 1613.
–, *Pseudomonas syringae* on, in U.S.S.R., 2209, 2747.
–, *Rhizopus stolonifer* on, mode of infection and symptoms of, 3157.
–, rose mottled mosaic virus on, transmission of, mechanically, 2765.
–, *Schizophyllum commune* on, symptoms of, 1613
–, *Sclerotinia fructicola* on, in N.S.W., 2032q; mode of infection and symptoms of, 3157.
–, *Stereum purpureum* on, symptoms of, 1613.
–, *Stigmina carpophila* on, in U.S.S.R., 1197.
– –, *Tranzschelia pruni-spinosae* var. *discolor* on, in Hungary, 1743h.
–, *Valsa* and *Verticillium* on, in U.S.S.R., 2747.
–, *Verticillium alboatrum* on, mode of infection and symptoms of, 3157.
–, — *dahliae* on, in U.S.S.R., periodicity of appearance of, 1198.
— virus diseases, development and symptoms of, 2747.
op scald', see Ethoxyquin.
orage disorders of apple, 1005, 1605, 2754; beet, 2903; carrot, 1005; citrus, 1745c, 2483; fodder, 2584i; fruit, 847; grapevine, 276; *Lablab niger*, 2918; onion, 1743u, 3289; pear, 2754; plum, 1005; potato, 1747h; timber, 2891, 2892; tomato, 1005; vegetables, 1465.
rawberry (*Fragaria vesca*), *Arabis* mosaic virus on, effect of chloropicrin and DD on, 859.
, *Botrytis cinerea* on, in Germany, 2029; control, 394a, 2219, 3163, 3164; effect of mulches on, 3163; of fungicides on, 2532, 3301a; of maxicrop on, 1783; of pollen grains on growth of, 3350.
, clover phyllody virus on, time of infection of, 2652.
, *Colletotrichum fragariae* on, overwintering of, 2533.
, *Corynebacterium fascians* on, *Aphelenchoides fragariae* associated with, 1626; biology of, 861; control, 1929.
crinkle virus on *Fragaria vesca*, 1928.
— — on strawberry in S. Africa, 1624; Yugoslavia, study on, 265; production of virus-free plants, 3162b; strs. and symptoms of, 1928; transmission of, by vectors, 265, 1624, 1928; var. react. to, 265.
[Strawberry crinkle virus] str.+strawberry mottle virus str. on strawberry, transmission of, by vectors, 579.
*—, *Dendrophoma obscurans* on, in Hungary, 1743x.
—, *Diplocarpon earlianum* on, nature of resistance to, 860.
—, *Endogone* on, forming mycorrhiza, 3712.
*—, *Gnomonia fragariae* on, in Hungary, 1743x.
— green petal virus on strawberry, study on, 1745f.
—, inhibition of potato virus X ring spot str. by extracts of, 470b.
— latent A virus on strawberry, production of virus-free plants, 3162b.
— — ring spot virus on celery, 3299d.
— — — — — — on *Mentha arvensis* and raspberry, 3508.
— — — — — on rhubarb, 3294.
— — — — — on rose, 1060.
— mild yellow edge virus on strawberry in S. Africa, latent period of, in vector, 1624.
— mottle virus on strawberry, hosts of, 1625; transmission of, by vectors, 395h, 579, 1625.
— — — str.+strawberry crinkle virus str. on strawberry, transmission of, by vectors, 579.
—, mycorrhiza of, 3669d; culture of phycomycetes forming, 3712.
—, *Mycosphaerella fragariae* on, control, 2781.
—, — *ligulicola* on, effect of leaf washings from, 1905.
—, *Pestalotia longi-setula* on, in Israel, symptoms of, 2780.
—, *Phytophthora fragariae* on, effect of dexon on, 3301c.
—, *Rhizoctonia fragariae* on, causing black root rot and forming mycorrhiza, 3669d.
—, *Sphaerotheca macularis* on, control, 2219; var. react. to, 1211.
— vein chlorosis virus on strawberry, production of virus-free plants, 3162b.
—, *Verticillium alboatrum* on, relationship of tannins, polyphenolics, and reducing sugars to, 3511a, b.
— virus diseases, 579; in Venezuela, 394f; production of virus-free plants, 3162b; testing for, on indicator plants, 264, 1210; transmission of, by vectors, 394f.
—, *Xanthomonas fragariae* on, in U.S.A., systemic invasion by, 862.
— yellow edge virus on strawberry, production of virus-free plants, 3162b.
Streptocycline against *Xanthomonas coracanae* on *Eleusine coracana*, 3101; *X. oryzae*, 1113s, 3339.
—, inhibition of *Pseudomonas* and *Xanthomonas* by, 3317.
— in combination as seed treatment for rice, 1113s.
Streptomyces aereoverticillatus in soil, 1140.
— *albidus* in soil, 1139.
— *albus*, antagonism of, to *Fomes annosus*, 1794.
— — in soil, 1139.
— *anandi*, pentaene G8 from, 422.
— *anulatus*, antagonism of, to fungi and bacteria, 421.
— — in soil, 534b.
— *antibioticus*, *S. citreus*, and *S. erythreus*, antagonism of, to *Fomes annosus*, 1794.
— *fungicidicus* in soil, 1140.

[*Streptomyces*] *globisporus* and *S. lavendulae* in soil, 1139.
— *levoris*, antagonism of, to *Fomes annosus*, 1794.
— — in soil, 1140.
— *netropsis*, antagonism of, to *Fomes annosus*, 1794.
— — in soil, 1139, 1140.
— *reticuli* in soil, 1139.
— *rimosus*, antagonism of, to *Fomes annosus*, 1794.
— —, inhibition of soil fungi by, 978d.
— *ruber* in soil, 1139.
— *scabies* on potato, see Potato.
— *violaceus* in soil, 1139.
Streptomycetes, fundamental genetics of, Hungarian book on, 1753.
Streptomycin against *Corynebacterium fascians* on strawberry, 1929; *Erwinia amylovora* on apple, 2751; *Xanthomonas phaseoli* on bean, 397c, 1377h.
—, effect of, on *Fomes tremulae*, 2388; on *Xanthomonas campestris*, 1338.
—, inhibition of pea Wisconsin streak virus by, 2002.
— in combination against *Pseudomonas lachrymans* on cucumber, 996; *Xanthomonas campestris* on cabbage, 996.
— A, effect of, on maize, 2045.
— sulphate, effect of, alone and in combination, on *Pseudomonas syringae* on pear, 2757.
Stylosanthes, groundnut rosette virus on, in Malawi, symptoms of, 960.
— *mucronata* transmitting groundnut chlorotic rosette virus, 3640.
Sucrose, effect of, on growth of *Monilia* and *Trichoderma* in mushroom compost, 390h.
*Sudan grass (*Sorghum sudanense*), *Colletotrichum graminicola* on, in India, 3099.
*— —, *Helminthosporium rostratum* on, in India, 1113g.
— —, maize dwarf mosaic virus on, in U.S.A., 2695.
— —, *Pseudomonas andropogonis* on, 1171.
*— —, *Ramulispora sorghi* on, in India, 807.
— —, *sorghum red stripe and wheat stripe mosaic viruses on, in U.S.S.R., 3403.
Sugar beet, see Beet.
Sugarcane (*Saccharum officinarum*), *Ceratocystis paradoxa* on, in Mauritius, 3198d; control, 3198d; effect of storage on susceptibility to, 884; host-parasite relationships in, 3201; soil micro-organisms in relation to, 1263.
—, *Cercospora koepkei* on, sporulation of, in culture, 1658.
— chlorotic streak virus on sugarcane in Philippines, *302, 1261; control, 882b; transmission of, by cuttings, and var. react. to, 1261.
*—, *Colletotrichum graminicola* on, in India, 3099.
*—, *Dimeriella sacchari* on, in Philippines, 302.
— diseases in India, 3199; Réunion, 979; S. Africa, 1259b; the world, 2554; control, 2554, 3198c; symptoms of, 1259b.
*—, *Drechslera sacchari* on, in Malawi, 1747d.
—, — *stenospila* on, in Senegal, 1462; cultural variants of, 1264.
—, effect of thiram on, 3198e.
— Fiji disease virus on sugarcane in Madagascar, 3065.
*—, *Fusarium* arrow rot on, in Réunion, 979.
*[Sugarcane], *Gibberella fujikuroi* on, in Arg tina, ?advanced stage of 'Pokkah boeng', 3
*—, *Glomerella tucumanensis* on, in Rhod 2359a; appressoria in, 3744; effect of dates on conidial germination in, 2 karyology, hyphal fusions, and new iso of, 3552; methods for rating for resistanc 303; production of enzymes by conidia 1659; similarity of *Colletotrichum graminic* on sorghum to, 3099; sporulation of, resistant and susceptible vars., 2555; sp of, in leaves, 2827.
— grassy shoot virus on sugarcane, associat of, with Mn deficiency, 3200.
—, *Leptosphaeria michotii* on, C.M.I. desc tion of, 1035a.
—, — *sacchari* on, in Ivory Coast, 2826; C.M description of, 1035a.
*—, — *taiwanensis* on, in Philippines, 302.
—, maize dwarf mosaic virus on, in U.S. symptoms of different from sugarcane mo virus, 300.
*—, *Marasmius sacchari* on, in Rhode 2359a.
— mosaic virus, maize mosaic virus in Ir a str. of, 148.
— — — on *Rottboellia exaltata*, 2250.
— — — on sorghum, 1260.
— — — on *Sorghum halepense*, 1260, 2250
— — — on sugarcane, 1260; in Madagas 3065; S. Africa, 301; U.S.A., 2825; fact affecting, 2250; properties of, 301; resistan to, 1259a; serological relationships of, 3 technique for isolating, 301; transmission to sugarcane, 2250; var. react. to, 2825.
— — — Johnson grass str., *Sorghum halepe* mosaic virus on maize ?related to, 1106
— — — sub-str. on sugarcane in India, 883.
—, *Numicia viridis* on, fungal parasites asso ated with, 1259b.
—, *Pseudomonas rubrilineans* can infect, 804.
*—, — *rubrisubalbicans* on, in Malawi, 174
*—, *Puccinia erianthi* on, in Rhodesia, 2359a.
—, — *kuehnii* on, in Madagascar, 3065.
—, *Pythium* on, testing resistance to, 2249c.
*—, — ?*acanthicum* on, in Hawaii, 2249b.
— ratoon stunting virus on sugarcane Hawaii, 2249a; India, 3199; Queensla 882a; Réunion, 3551; detection of, 12 effect of heat treatment on, 1259a, 3551; v react. to, 882a, 2249a.
—, *Sclerospora macrospora* on, in S. Afri 1259b.
—, — *sacchari* on, technique for inoculati 1266.
— striate mosaic virus on sugarcane, inocu tion of, 882c.
—, *Ustilago scitaminea* on, in Hong Ko 3668d; India, 1265; Malawi, 399c; Rhodes 2251; effect of, on juice quality, 1265; fact affecting, 3202; heterothallic mating patte in, 304; longevity of, 619; testing for res ance to, 1259a, 2358a; var. react. to, 2251
— white leaf disease, ?*Mycoplasma* causi 3555.
—, *Xanthomonas albilineans* on, in Mala 1747c; Queensland, 882d; Rhodesia, 22 2359*a, d; U.S.A., 3554; control, 882d; v react. to, 1267, 2251.
—, — *vasculorum* on, in Mauritius, 3198a, Réunion, 3551; distinction between isola from *Thysanolaena maxima* and, 3198b; s of, 3551.

phanilamide against *Cochliobolus miyabeanus* on rice, 177.
phasomidine against *Puccinia hordei* on barley, 2686.
toxicity of, to barley, 2686.
phathiozole against *Puccinia hordei* on barley and toxicity of, to barley, 2686.
phur against *Botrytis cinerea* on grapevine, 3173; *Elsinoe veneta* on raspberry, 1377n; *Erysiphe graminis* on cereals, 3407; *Fusarium* on grapevine, 3173; *Microsphaera alphitoides* on oak, 910; *Mycosphaerella arachidis*, 3d, 1356; *Oidium heveae*, 1258; *Peronospora destructor* on onion, 709; *Podosphaera leucotricha*, 1182, 1918, 2198; potato tuber diseases, 1376d; *Rhizoctonia* on grapevine, 3173; *Sphaerotheca macularis* on strawberry, 2219; sulphur deficiency in coconut, 2542a; *Uncinula necator*, 397g, 2791; *Venturia inaequalis*, 2198.
as soil disinfectant, 1377g, 3549d.
deficiency in coconut, 2542a, b.
, effect of, on sporulation of *Fusarium udum*, 374.
- in combination against *Plasmopara viticola*, 2792; *Podosphaera leucotricha*, 1182.
- — — on apple, cucumber, and rose, 19.
-, colloidal, against *Ascochyta rabiei* on *Cicer arietinum*, 2009; *Elsinoe ampelina*, 1634, 3171; *Erysiphe cichoracearum* on cucumber, 972, 2345; *E. c.* f.sp. *cucurbitacearum* on cucumber, 387; *E. graminis* on cereals, 3407; *Microsphaera alphitoides* on oak, 910; *Podosphaera leucotricha*, 1182, 2192; *Sphaerotheca fuliginea* f.sp. *cucurbitacearum* on cucumber, 387; *Uncinula necator*, 584.
-, —, in combination against *Cercospora* on grapevine, 274; *Erysiphe cichoracearum* on cucumber, 2344; *Uncinula necator*, 274, 2792.
- dioxide against *Botrytis cinerea* on grapevine, 276.
- — injury to crops in U.S.A., 780, 3700a, 3701.
- — — to potato, 298.
ulphuric acid for killing potato haulms, 1235c.
unflower (*Helianthus annuus*), *Albugo tragopogonis* and aster yellows virus on, in Argentina, 1222.
-, *Botrytis cinerea* on, in Hungary, aetiology and var. react. to, 1940.
- diseases in Argentina, 1222; Italy, control, 1807.
-, *Erysiphe cichoracearum* on, in Argentina, 1222; adaptation of, to heat, 1771.
- 'head drop', *Helminthosporium helianthi*, and *Itersonilia perplexans* on, in Argentina, 1222.
-, *Macrophomina phaseoli* on, in Argentina, 1222; Senegal, 83; production of toxin by, 978j; symptoms of, 83.
- mosaic virus on sunflower in Argentina, 1222.
—, *Mycosphaerella ligulicola* on, 1154; effect of leaf washings on, 1905.
- 'pesta negra' and *Phoma oleracea* var. *helianthi-tuberosi* on, in Argentina, 1222.
—, *Phyllosticta helianthi* on, in U.S.S.R., 3066.
-, *Plasmopara halstedii* on, in Argentina, 1222; Iran, 3063c; U.S.S.R., 2231; biology of, 1941; control and survival of oospores of, 2231.
-, *Pseudomonas solanacearum* on, in Bulgaria, penetration of, 2594.
[Sunflower], *Puccinia helianthi* on, in Argentina, 1222; adaptation of, to heat, 1771; physiologic races of, 978l; production of teliospores on detached leaves of, 978k; technique for inoculating, 1445; tissue culture of, 1581.
—, *Pyrenochaeta terrestris* on, 2119.
—, *Sclerotinia minor*, *S. sclerotiorum*, and *Sclerotium rolfsii* on, in Argentina, 1222.
—, *Verticillium* on, apparatus for detecting, 1136.
—, — *dahliae* on, in Argentina, 1222.
Sweet corn, see Maize.
— potato (*Ipomoea batatas*), *Botryodiplodia tubericola* on, 2248.
— —, *Ceratocystis fimbriata* on, 2248; control, 2819; callus tissue in, 3547; enzymes of, 1656.
— —, fungi on floral parts, 3548.
— —, *Fusarium batatatis* and *F. hyperoxysporum* on, 2248.
— — 'little leaf' virus on sweet potato in Papua and New Guinea, transmission of, 879.
— —, Manual for cultivation of, 2248.
— —, *Monilochaetes infuscans* on, control, 2819.
— — virus diseases, 1381m.
Symposia, see Conferences and Reports.
Synchytrium endobioticum on potato, see Potato.
— —, technique for staining spores of, 60.
Syringa vulgaris, see Lilac.
Syringomycin, effect of, on *Pseudomonas syringae* on peach, inhibition of *Geotrichum candidum* by, and production of, by *Pseudomonas syringae*, 1203.

2,4,5-T, use of, for poisoning rubber root stumps, 1257.
T–148, T–186, and T–191 against *Botrytis cinerea* on grapevine, 3172.
Tangelo [*Citrus* hybrid], citrus stubborn disease virus on, symptoms of, 187.
Tangerine, see Orange.
Tannic acid, elimination of soil fungi by, 1018.
Tannins, effect of, on *Fusarium solani* f.sp. *phaseoli* and *Verticillium alboatrum*, 1775.
Taphrina cerasi on cherry, 2032d.
— *deformans* on almond, 2759, 2770.
— *maculans* on *Curcuma amada*, 870.
— — on turmeric, 870, 2232, 2801.
*— *polyspora* on *Acer tataricum* and **T. ulmi* on elm, 1680.
Tar oil against *Sphaerotheca mors-uvae* on currant, 1375q.
— vapour injury to plants, 1072.
Taxodium distichum, *Stereum taxodii* on, pathogenicity of, 2883.
Taxus baccata, see Yew.
TCPA, effect of, on *Ceratocystis ulmi* on elm, 2848.
TCTNB against *Fusarium oxysporum* f.sp. *aechmea* on *Aechmea fasciata*, 1374g.
Tea (*Camellia sinensis*), *Corticium invisum* on, in India, 3203.
— diseases, control, 1268, 2430.
—, *Exobasidium vexans* on, in Ceylon, 1960; control, 620b, 621c, 1268, 1960; method for forecasting, 1269.
—, *Hypoxylon serpens* on, in India, 2655; eradication of, by pruning, 621b.
—, *Phomopsis theae* on, control, 1268; factors affecting, 1961.
—, *Poria hypobrunnea* on, in India, 3203; antagonism of *Penicillium* and *Trichoderma*

viride to, 1962; control, 620a, 1268, 1962, 3203; factors affecting, 1962.
[Tea], *Rosellinia arcuata* on, control, 1962.
—, *Tunstallia aculeata* on, in India, 2655; control, 3203.
Teak (*Tectona grandis*), *Fusarium solani* on, in Tanzania, causing pink staining, 3591.
Technique (see also Apparatus) for **comparing** hyphal cells of *Pyrenochaeta terrestris*, 2632; **controlling** soil temp., 457; **culturing** *Alternaria cuscutacidae*, 3046; *Endogone* from strawberry mycorrhiza, 3712; fungi in soil culture jars, 2418; Uredinales, 773; *Valsa cincta*, 3715; **detecting** antigen inhibition of potato virus X, 289; beet yellows virus on beet, 366; *Ceratocystis ulmi* on elm, 651; clover viruses, 3482; micro-organisms by infrared photography, 2417; morestan residues, 2384; *Mortierella* in soil, 2411; oil deposits against beet virus vectors, 367; *Penicillium claviforme* and *P. martensii* on grapevine, 3523; plant viruses, 1457; *Plasmodiophora brassicae* on rape, 938; potato viruses, 1224b, 3538; *Pythium* in soil, 2411; serological differences between barley yellow dwarf virus strs., 1078; strawberry viruses on indicator plants, 264; tobacco rattle virus in soil, 2586e; viable microcolonies of bacteria, 2091; viable spores of *Septoria apiicola* on celery seed, 1734; of *Ustilago nuda* on barley and wheat seed, 2444; **differentiating** between races of *Phytophthora fragariae*, 2779; *Verticillium alboatrum*, *V. dahliae*, and *V. tricorpus*, 2658; **dispersing** fungus spores in the glasshouse, 3042; **establishing** single conidial lines of *Erysiphe polygoni*, 2096; **evaluating** antibiotic activity of phytoactin, 3340; cumulative spore germination, 772; eggplant little leaf disease, 3660; **evaluating fungicides**, 310; against *Botrytis cinerea*, 2357j; *Corticium solani* on cotton, 2597; *Leptosphaeria salvinii*, 3336; *Pseudoperonospora humuli* on hop, 1937; *Ophiobolus graminis* on wheat, 2584o; **evaluating** moisture content of fungicides, 3334; pathogenicity of *Phytophthora* to tomato, 1292; penetration of fungicides in plant tissues, 3329; potato breeding material, 1224a; *Pseudomonas phaseolicola* on bean, 1375v; **evaluating resistance** of apple to fungi, 3153; cacao to *Ceratocystis*, 1470b; to *Phytophthora palmivora*, 1470c; cotton to *Verticillium alboatrum*, 825; to *V. dahliae*, 208; potato to *Erwinia atroseptica*, 1956; rice to *Pyricularia oryzae*, 1118a; sugarcane to *Ustilago scitaminea*, 1259a; tomato to *Alternaria solani*, 3669e; **evaluating** saprophytic activity of *Sclerotium rolfsii* in soil, 2614; sensitivity of fungus spores to heat, 2635; soil fungicides, 2616, 3305a; spore composition in *Plasmopara viticola*, 1374p; spray efficiency, 1888; timber preservatives, 3250; treated seeds, 1447; viruses by photometry, 394g; **examining** fungi from timber, 2633; **extracting** N compounds from conidia of *Colletotrichum lagenarium*, 3725; **forecasting** crop losses from disease, 1746a; outbreaks of *Phytophthora infestans*, 294; *Polystigma rubrum* on plum and *Venturia inaequalis*, 1916; **identifying** *Corticium solani* in soil, 3669a; fungi on timber, 2887; lettuce mosaic virus, 384; **inoculating** barley with *Ustilago nuda*, 2443; cotton with *Fusarium oxysporum* f.sp. *vasinfectum*, 1567; grapevine with viruses, 582; groundnut with *Myc sphaerella arachidis* and *M. berkeleyi*, 17 maize with *Fusarium*, 1526; with ma dwarf mosaic virus, 1513a, b; with *Ustil maydis*, 2149; rice with *Corticium sasa* 1537c; with *Xanthomonas oryzae*, 153 sugarcane with *Sclerospora sacchari*, 1 sunflower with *Puccinia helianthi*, 14 tobacco with *Peronospora tabacina*, 1 tomato with *Colletotrichum coccodes*, 366 wheat with *Puccinia graminis*, 1445; w *Ustilago nuda*, 2443; *Xiphinema index* w grapevine fanleaf virus, 2537; **isolating** *Asp gillus flavus* from groundnut and soil, *Cephalosporium gregatum* from soyb straw, 3634; *Ceratocystis fimbriata*, 14 chlamydospores of *Phytophthora cinnamo* 444; conidia of *Cercospora beticola*, 3 *Erwinia carotovora*, 3681; mushroom vi particles, 1740; *Phoma foveata* and *P. solk cola* from soil, 3190; *Phytophthora* spp. fr *Hevea* rubber, 1657; *Sclerotium cepivor* from onion, 2933b; single spores of *Myc sphaerella arachidis* and *M. berkeleyi*, 17 soil fungi, 1781, 3016a, b; sugarcane mos virus strs. from sorghum and sugarca 301; thermophilic fungi, 3674; *Thelephe terrestris*, 3729; **labelling** *Ceratocystis u* with carbon, 653; **making** a microhumid chamber, 2634; **measuring** plant virus sy thesis, 1049; sporulation of *Aphanomy cochlioides* on barley residues, 440; tra mission of *Corynebacterium michiganense* a *Xanthomonas vesicatoria* through toma seed, 2843; **preparing** agar tests in seed hea investigation, 2094; antiserum against stolb virus, 2427; against tulip breaking vir 2508; against wheat striate mosaic vir 2448; inoculum from sclerotia of *Clavice purpurea*, 2095; **preserving** viability of fung cultures, 2093, 3044, 3045; **producing** diff ent spore forms of *Fusarium oxysporum* f.s *melonis*, 1374f; sporangia of *Phytophth citrophthora*, 2636; virus-free plant materi 249, 1062; **purifying** potato aucuba mos virus, 1646; rice tungro virus, 1116; tobac mosaic virus, 779; **separating** ascospores pyrenomycetes from soil, 1422; ascospo and diploid cells of *Saccharomyces ce visiae*, 2088; pathogenic bacteria from int cellular leaf tissue, 2373; 28 S RNA fr turnip yellow mosaic virus, 3049; **sprayi** coffee against *Glomerella cingulata*, 27 potato against *Phytophthora infestans*, 123 **staining** Agaricales, 56; spores of *Synchytri endobioticum*, 60; **studying** *Fomes annosus* Coniferae, 3229; fungi growing in a tra lucent particulate matrix, 2966; on cott roots, 3121; inhibition of parasitic activity *Ophiobolus graminis* in field soils, 125; ly of cell walls of fungi in soil, 2410; soil fun stasis, 1432; spore deposition in cro 2584h; spore germination of *Sclerotinia la* 59; **synthesizing** mycorrhiza between p and *Tuber maculatum*, 3708; **transmitt** coconut lethal yellowing, 1637; potato viru by grafting, 286.
Tectona grandis, see Teak.
Teepol, effect of, on *Hemileia vastatrix* coffee, 1559.
Telone PBC against *Fusarium oxyspor* f.sp. *lycopersici* on tomato, 2356i; *Thiel opsis basicola* on tobacco, 1285.

ıik 10G as soil disinfectant, 3595a.
hrosia vogelii, alfalfa mosaic virus and
)mato aspermy virus on, transmission of,
054.
abol, see Methyl bromide.
fezia leonis in U.S.S.R., 1373.
mil against *Botrytis cinerea* on *Cattleya* and
ymbidium and toxicity of, 2504.
minalia tomentosa, decay resistance of, 677.
raclor against *Corticium solani*, 38; as soil
lisinfectant, 38, 967, 3436.
in combination against *Corticium solani* and
Sclerotium rolfsii on groundnut, 1731a.
razole against *Phytophthora capsici* on
Capsicum, 2949.
in combination against *Corticium solani* and
Sclerotium rolfsii on groundnut, 1731a.
trachlone against *Erysiphe cichoracearum* on
cucumber, 386.
trachloro-*o*-cresol against *Pezicula malicorticis* on apple, 564.
trachloroisophthalonitrile against *Helminthosporium heveae*, 880c; *Phytophthora infestans* on potato, 607.
etracycline, inhibition of *Streptomyces* on potato by, 1252.
, stimulation of *Verticillium dahliae* in soil by, 2487.
- hydrochloride against mulberry dwarf virus on mulberry, 656.
etragonia expansa, carnation mottle virus str. on, differentiation of str. on carnation from, 3463.
—, *Iris* mosaic virus on, 2183.
2,3,4-tetrahydronaphthalene against *Agrobacterium tumefaciens* on fruit, and *Pseudomonas savastanoi* on olive, 3322.
etranychus urticae in relation to plant viruses, 70.
etra sodium pyrophosphate against *Botrytis*, *Penicillium expansum*, and *Rhizopus stolonifer* on cherry, 1925.
halictrum, *Puccinia recondita* on, 3417; in N. America, susceptibility to, 2126.
- *speciosissimum*, *Puccinia recondita* on, in Portugal, 493.
hallophytes, review and taxonomy of, 1030.
hecodiplosis brachyntera, association of, with *Cenangium ferruginosum* on pine, 346.
helephora terrestris in soil, 3729.
- — on pine, forming mycorrhiza, 425.
- — on spruce, 3729.
heobroma cacao, see Cacao.
hiabendazole against *Ceratocystis paradoxa* on pineapple, 3513; *Cercospora beticola*, 368; *Erysiphe cichoracearum* on squash, 1819; *Fusarium roseum* and *F. solani* on cantaloupe, 2582; *Nectria galligena* on apple, 2205; *Nigrospora musae* on banana, 2032r; *Penicillium* on lemon, 197; *P. digitatum* and *P. italicum* on citrus, 3442; *Peronospora farinosa* on beet, 2584r; *Pezicula malicorticis* on apple, 2205; *Ramularia beticola* on beet, 2584r; *Sclerotinia sclerotiorum* on bean, 1352; *Trichoseptoria fructigena* on apple, 2205; *Verticillium cinerescens* on carnation, 3128; as seed treatment for cereals, 1819; as soil disinfectant, 3117.
hiabenzole against oil palm leaf diseases, 3181.
hiazolidin-1,3-thion-2 as seed treatment for wheat, 2446.
hiazone against *Plasmodiophora brassicae* on cabbage, 1336.
Thibenzole against *Fusarium oxysporum* and *F. solani* on oil palm, 3532.
Thielaviopsis basicola, C.M.I. description of, 3030.
— — in soil, see Soil.
— — on bean, 2005, 2615b.
— — on cotton, 527, 528.
— — on *Cyclamen*, 1156, 3459c.
*— — on flax, 2586a.
— — on *Nicotiana debneyi* and pea, 978n.
— — on *Poncirus trifoliata* and orange, 1884.
— — on tobacco, see Tobacco.
— — + *Verticillium alboatrum* on cotton, 528.
Thioaceto-hydroxamic acids, fungitoxicity of, 994.
Thiocarbamates in combination against *Peronospora tabacina*, *Pseudomonas angulata*, and *P. tabaci* on tobacco, 2834.
Thiodyl as seed treatment for potato, 1648.
?Thiolutin against *Fusarium oxysporum* f.sp. *lycopersici* on tomato, 3697.
Thionazin, residues of, 390r.
Thiosol against *Oidium* on tomato, 2836.
Thiouracil, effect of, on potato virus X and tobacco mosaic virus on tomato, 2108; on tobacco leaf curl virus on tomato, 634.
Thiram, adaptation of *Corticium solani* on cotton and potato to, 420.
— against *Ascochyta rabiei* on *Cicer arietinum*, 2009; *Botrytis cinerea* on grapevine, 3971, 2791, 3173; on persimmon, 2786; on strawberry, 2532; on tomato, 318; *Bremia lactucae* on lettuce, 1375s; cucumber root rot, 2581; *Elsinoe veneta* on raspberry, 1377n; *Fusarium* on grapevine, 3173; *F. oxysporum* f.sp. *aechmea* on *Aechmea fasciata*, 1374g; *F. solani* on oil palm, 3532; *Fusicoccum amygdali* on almond, 854; *Gibberella fujikuroi* on *Freesia*, 390g; *Mycosphaerella fragariae*, 2781; oil palm leaf diseases, 3181; *Peronospora parasitica* on cabbage, 1375s; *P. tabacina*, 1281; *Phomopsis diospyri* on persimmon, 2786; *Puccinia pringsheimiana* on gooseberry, 1927; *Rhizoctonia* on grapevine, 3173; *Sclerotinia fructigena* and *S. laxa* on plum, 1615; *Streptomyces scabies*, 2552; *Xanthomonas phaseoli* on bean, 1377h; as seed treatment, 1375w; for carrot, 2936; for cereals, 3406; for *Hibiscus cannabinus*, 2730; for maize, 1113e, 3096, 3436; for oats, 1858; for soybean, 2920; for spruce, 3219a; for sunflower, 2231; as soil disinfectant, 2356g, 2730; as treatment for onion bulbs, 2339.
—, effect of, on *Alternaria tenuis*, 741; *Aspergillus flavus* and *A. niger* from groundnut, 2016; *Botrytis cinerea* from strawberry and strawberry pollen, 3301a; on sugarcane, 3198e; of residues of, in soil on *Pythium ultimum* on pea, 41.
—, fungitoxicity of, in soil, 2985.
—, methods for determining residues of, 390r; moisture content of, 3334.
—, tolerance of *Sclerotinia homoeocarpa* on *Agrostis* to, 2745.
—, toxicity of, to oats, 1858.
— in combination against cotton root rots, 2492; *Fusarium roseum* on turf, 551; *Peronospora tabacina*, 627; *Urocystis cepulae* on onion, 3649.
— — — on apple, cucumber, and rose, 19.
— 85 against *Claviceps purpurea* on *Poa pratensis*, 1170.

[Thiram] SF-75 against damping-off of pine and spruce, 341.
Thiuron against *Botrytis cinerea* on grapevine, 3522.
Thuja occidentalis, *Phacidium abietis* on, 338.
*— *plicata*, *Coryneum thujinum* on, in Canada, 2562f.
— —, *Didymascella thujina* on, in U.K., trapping ascospores of, 3219.
Thysanolaena maxima, *Xanthomonas vasculorum* on, in Mauritius, distinction between isolates from sugarcane and, 3198b.
Tiezene against *Peronospora tabacina*, 1281; *Phragmidium tuberculatum* on rose, 1164; *Plasmopara viticola*, 2791.
Tilia, *Coniophora puteana* and *Fomes fomentarius* on, biology of, 1702.
— *europaea*, *Aureobasidium pullulans* on, localization of, in, 662.
Tilletia barclayana on rice, 1539.
— —, teliospore morphology of, 3738.
— *caries*, effect of Rumanian fungicides on, 3333.
— —, electron microscopy of, 3739.
— — on cereals, 1404, 3013.
— — on wheat, see Wheat.
— —, review of methods for testing fungicides against, in U.S.S.R., 1841.
— *contraversa* on cereals, 3013.
— — on rye, 1809.
— — on wheat, see Wheat.
— *foetida* on wheat, see Wheat.
— —, review of methods for testing fungicides against, in U.S.S.R., 1841.
— *pancicii* on barley, 1842.
Tillex as seed treatment for rye, 146.
—, toxicity of, to cacao, 2438b.
Timber, ascomycetes on, 3247.
—, *Aureobasidium pullulans* on, in Australia, 2285; growth of, 3610; white mutant of, 1700.
—, bacteria on, resistance of, to pentachlorophenol, 930; review of, 931.
—, basidiomycetes on, in New Zealand, 3249.
— blue stain in U.K., bark beetles associated with, 3219; damage caused by and factors affecting, 3609.
—, *Cephaloascus fragrans* on, adaptation of, to pentachlorophenol, 360.
—, *Ceratocystis araucariae* on, in Chile, causing blue stain, 1990.
—, *Clitocybe tabescens* on, in Réunion, 979.
—, *Collybia velutipes* on, characteristics of, 679.
—, *Coniophora puteana* on, in Thailand, resistance to, 929; control, 3251; effect of radiation on, 2303; utilization of N by, 1332.
—, *Daedalea quercina* on, in Thailand, resistance to, 929.
—, deuteromycetes on, 3247.
—, *Diplodia natalensis* on, in Trinidad, bark beetles not associated with, 3608.
—, — *pinea* on, in New Zealand, 3249; control, 1333.
—, *Fomes* on, effect of temp. on, 3605.
—, — *fomentarius* on, characteristics of, 679; wood-destroying ability of, 680.
—, — *igniarius* on, destructive capacity of, 1328.
—, — *roseus* on, control, 681.
—, fungi on, in Thailand, 929; biochemistry of, 903; chemical decomposition of, by, 2886; control, 903; German book on, 1699; monograph on, 1697; morphology of, 903; N nutrition of, 2888; resistance to, 929; sym[t]oms of, 903; technique for examining, 26[3] for identifying, 2887.
[Timber], *Ganoderma applanatum* on, charact[e]istics of, 679.
—, *Hyphoderma tenue* and *Hyphodontia a[l]taria* on, 932.
—, *Lentinus lepideus* on, control, 3251; effect [o]light on decay by, 682; utilization of N [b]1332.
—, *Lenzites saepiaria* and *L. subferruginea* c[o]control, 681.
—, — *trabea* on, control, 3251; effect of [li]on decay by, 682; of N content on, 1992.
—, *Leptographium* on, in Australia, 2285.
—, *Macrophoma sabinea* on, in Australia, 228[5]
—, 'Mastpilz A' on, 932.
—, *Odontia bicolor* on, 932.
—, *Penicillium* on, in Australia, 2285.
—, *Peniophora* near *P. pini* and *P. filamento[sa]* on, in Australia, 2285.
—, — *gigantea* on, in Australia, 2285; [N]Zealand 3249; control, 1333.
—, — *mollis* on, 932.
— pink stain, *Corticium ?psorosum* and *Fus[a]rium* associated with, 1333.
—, *Pleurotus ostreatus* on, factors affecti[n]1991.
—, *Polyporus* on, effect of temp. on, 3605.
—, — *adustus* on, in Canada, inhibition of, [b]*Trichoderma viride*, 2891.
—, — *anceps* on, 2271b.
—, — *megaloporus* on, in England and Franc[e] taxonomy of, 1331.
—, — *sulphureus* on, effect of CO_2 and O [o]growth of, 1993.
—, *Polystictus sanguineus* on, in Australia, 228[5]
—, — *versicolor* on, in Thailand, 929; chara[c]teristics of, 679; control, 3251; effect of C[O] and O on, 1993; of N content on, 1992; [o]on, 3606; factors affecting, 1991; N nutritio[n] of, 2888; penetration by, 3606; resistance t[o] 929; serology of, 1701.
—, *Poria carbonica* on, detection and ident[i]fication of, 1334.
—, — *monticola* on, control, 681; effect of lig[h] on decay by, 682; penetration by, 3606.
—, — *vaporaria* on, utilization of N by, 133[2]
— preservation by sap-displacement metho[d] 678.
— — with ammonia, 1334; ascu, 678; celcur 678; coal tar oil, 1989; copper sulphate, 67[8] creosote, 3251; fuel oil in combination, 68[1] methyl bromide, 1334; pentachlorophenol [in] combination, 681, 3609.
— preservatives, leaflet on, 2885.
— —, technique for evaluating, 3250.
—, *Schizophyllum commune* on, 1335; [in] Australia, 2285; submerged culture of, 360[1]
—, *Serpula lacrimans* on, effect of radiation o[n] 2303; utilization of N by, 1332.
—, soft rot fungi on, control, 1989; effect [of] pairs or single sp. on, 933; review of, 93[4] technique for testing, 934.
—, *Stereum frustulosum* and *S. gausapatum* o[n] effect of CO_2 and O on, 1993.
—, — *sanguinolentum* on, in Australia, 2285.
— storage decay in Canada, 2305, 289[2] Sweden, 2892; review of, 677, 681.
—, *Trametes* on, effect of temp. on, 3605.
—, — *gibbosa* on, characteristics of, 679.
—, — *sanguinea* on, antagonism of other fun[gi] to, 2304.

ıber, *Trametes*] *serialis* on, control, 681.
Trichoderma viride on, in Australia, 2285.
hips, fungi on, 2305; in Sweden, 2892.
compounds, organic, in agriculture, 393e.
—, —, inhibition of *Gloeosporium alborubrum* on *Hevea* rubber by, 880d.
TD, see Thiram.
bacco (*Nicotiana tabacum*), *Agrobacterium tumefaciens* on, interaction between plant viruses and, 1672.
Alternaria longipes on, in Malawi, 399b; Malaya, 2034b; Zambia, 885.
— *tenuis* on, 3565.
as indicator for potato virus Y, 1744d.
Aspergillus on, 3565.
bacteria on, hypersensitivity to, 3316.
Barakovo-black spot in Bulgaria, 1673.
bushy top virus on tobacco in Rhodesia, 885.
Cercospora nicotianae on, in Rhodesia and Zambia, 885; control, 2831.
cherry chlorotic-necrotic ring spot virus on, var. react. to, 255.
— Pfeffinger virus on, serum production, 1193.
, citrus infectious variegation virus on, transmission of, mechanically, 2715.
, *Cladosporium herbarum* on, 3565.
, *Colletotrichum* on, in Japan, taxonomy of, 887.
, — *nicotianae* on, carbohydrase activity in, 2605.
, — *tabacum* on, in Malawi, 399b; Rhodesia and Zambia, 885.
, *Corticium solani* on, in Malawi, 399b.
, cucumber mosaic virus on, in Japan, 77; chromatography of, 76f; ectodesmata and resistance to, 3206; factors affecting activity of, 76g; *in vitro* increase in infectivity of, 466; method for assaying strs. of, 77; purification of, 76e; results of international community trial on, 306.
, — — — necrotic str. on, types of resistance to, 2252.
, — — — str. on, chromatography of, 76f; factors affecting activity of, 76d; leaf veins as sources of, for vectors, 2639; relationship of, to N nutrition, 76c; symptoms of, 75a; var. react. to, 76b.
, — — — strs. on, development of symptoms of, 76a; differential transmission of, by vectors, 3389.
damping-off, 1381e, 3210.
diseases in Italy, 1807; Rhodesia and Gambia, 885; pipecolic acid content in relation to, 2158.
, *Erwinia amylovora* on, hypersensitivity to, 3316.
, *Erysiphe cichoracearum* on, in Rhodesia, 885; breeding against, 3563; control, 629, 1284.
, — — f.sp. *nicotianae* on, in U.S.S.R., infected stems as source of, 315.
etch virus, hosts of, 1455.
— — in Venezuela, 1381m.
— —, relationship of, to other viruses, 2647, 2951.
— — on *Capsicum*, 2648.
— — on *Zinnia*, 2423.
, fungi on damaged flue-cured in U.S.A., 3211.
, *Fusarium argillaceum* on, 3565.
, groundnut stunt virus on, in U.S.A., identification and symptoms of, 3305e.
[Tobacco] leaf curl virus on tomato, 634, 3568.
— mosaic virus in Jordan, Lebanon and Syria, 1045.
— — —, differentiation of, from *Lychnis* mosaic virus, 3471; *Opuntia* virus, 1160.
— — —, *Dolichos* enation mosaic virus serotype of, 465.
— — —, effect of DMSO on, 1664; fat emulsions on mechanical transmission of, 395c; freezing on infectivity of, 2829.
— — —, electron microscopy of, 1271, 1963, 2109.
— — —, inhibition of, by extracts from animals, 1745n; from fungi, 3204; pentaene G8, 422; solar radiation, 3387; UV radiation, 262.
— — —, interaction between ribonuclease and, 463.
— — —, *in vitro* increase in infectivity of, 466.
— — —, resistance to *Pseudomonas tabaci* induced by, 3566.
— — —, serology of, 1048, 2557.
— — —, technique for labelling, 1453; purifying, 779.
— — — on bean, 1454, 1743z, 2112.
— — — on *Capsicum*, 1044, 1744e, 2648.
— — — on cherry, 572.
— — — on *Datura stramonium*, 2254.
— — — on grapevine, 583a, b, 2224, 3517.
— — — on *Lycopersicon peruvianum*, 3567.
— — — on *Nicotiana glutinosa*, see *N. glutinosa*.
— — — on *N. sylvestris*, 1272.
— — — on orchid, 2738.
— — — on pimento, 1745h.
— — — on potato, 3300d.
— — — on *Radicula sylvestris*, 2111.
*— — — on *Sambucus*, 1052.
— — — on tobacco, 1273a; cigarettes as source of, in Japan, 2263; control, 2253; detection of, 78; ectodesmata and resistance to, 3206; effect of chloramphenicol on susceptibility to, 1743z; of cytokinins on, 1274; of heat on, 1452; of, on P metabolism, 3205; fine structure of, 1270; hypersensitivity to, induced by potato virus Y, 2254, 3209; inhibition of *Alternaria solani* and *A. tenuis* by sap from, 3386; inhibition of, by gasteropod extracts, 1275; by yeast RNA, 2422; localization of protein in, 3560; metabolism of glucose in, 1273b; methods for measuring synthesis in, 1049; for preparing fluorescent antibodies of, 3561; peroxidase isozymes in, 2112; physiological modifications caused by, 2828; rate of growth of peptide chain in, 1661; resistance to, 1660; results of international community trial on, 306; study on metabolism of, 622; tissue culture of, 886; types of resistance to, 2252; var. react. to, 1660.
— — — on tomato, see Tomato.
*— — — on wisteria, 1052.
— — — aucuba str. on tobacco, fine structure of, 2830.
— — — leguminous str., nontransmission of, by *Tetranychus urticae*, 70.
— — — orchid str. on *Cattleya*, 3136.
— — — ribgrass str. on *Plantago media*, 1802.
— — — str. on *Chenopodium amaranticolor*, 2740.
— — — — on *Cymbidium*, 80.
— — — — on *Datura stramonium*, 2740.
— — — — on *Nicotiana glutinosa*, 80, 2740.
— — — — on *Petunia hybrida*, 2740.

[Tobacco mosaic virus str.] on tobacco, electron microscopy of, 3556.
— — — strs., temp. sensitivity of, 3557.
— — — — on tomato, 1288.
— — — tomato enation mosaic str. on tomato, 317.
— — — — str. on tobacco, symptoms of, 2263.
— — — — — on tomato, 632, 1287.
— — — U1 str., hosts of, 2547.
— — — U2 str. on *Nicotiana glauca*, 3385.
— — — U5 str. on tobacco, virus particles in chloroplasts of, 3558.
— — — Y-TAMV str. on asparagus, broad bean, and pumpkin, 3385.
— — — +potato virus X on tomato, 630, 1290, 2108.
—, *Mucor racemosus* on, 3565.
— necrosis virus, comparison of *in vitro* infectivity of, with cucumber mosaic virus, 466.
— — —, dark reactivation of UV-irradiated, 3050.
— — —, distinction of cucumber necrosis virus from, 2107.
— — —, electron microscopy of satellite virus of, 2425.
— — —, transmission of, by vectors, 9b, 2955, 3051.
— — — on bean, see Bean.
— — — on *Chenopodium amaranticolor*, 2584a.
— — — on cowpea, 1771.
— — — on tobacco, effect of UV light on, 2584a; not infecting uninjured leaves of, 1454.
— — — on tulip, 1374t, 3301j.
— — — strs., selective activation of satellite virus strs. by, 3207.
—, ozone injury to, 3702.
—, *Penicillium* on, 3565.
—, *Peronospora tabacina* on, 1279; in Germany, E., 2029; Iran, 1668; Italy, 888; Poland, 2956; Qd, 311, 1380a; Switzerland, 1964; Turkey, 2257; Vict., 1380a; abnormal proliferation of conidia of, 313; breeding against, 308; control, 311, 624, 625, 627, 888, 1280, 1281, 1964, 2256, 2257, 2379b, 2834; cryogenic storage of, 623; effect of cultures and spp. of *Nicotiana* on virulence of, 2260; of inoculation conditions on behaviour of resistant vars., 1669; of root infection on epidemiology of, 1670; of water on leaves on susceptibility to, 1380d; factors affecting control, 312; affecting infection by, 1283, 2833; affecting oospore formation in, 314; affecting sporulation of, 628; forecasting of, 1808; hosts of, 1668; infection sites of, 1277; investigations on resistance to, 1965; method for assessing fungicides against, 310; systemic fungicides against, 2379b; penetration by, 2586c; physiologic races of, 1380b; reaction to, testing for, 1276; stem form of, 1278; strs. of, 1276, 1380a; symptoms of, 626; techniques for inoculating, 1282; var. react. to, 1666, 1667, 1668; viability of conidia of, in storage, 309.
—, *Phytophthora nicotianae* on, in Japan, 890; Puerto Rico and U.S.A., breeding against, 889; effect of Ca nutrition on, 316; var. react. to, 890.
—, — — var. *parasitica* on, cultural and pathogenic variation in, 2657.
—, potato virus S on, methods for detection of, 2544.
[Tobacco, potato virus] X on, cages for, serum production, 2113; detection of, 78; free nucleic acid in, 2642; effect of blue li on, 2641.
—, — — Y on, in Japan, 2255; Rhodesia, breeding against, 308; cages for, in ser production, 2113; hypersensitivity to toba mosaic virus induced by, 2254, 3209 tobacco necrosis virus induced by, 22 methods for detection of, 2544; str. of, 22 results of international community trial 306.
—, *Pseudomonas angulata* on, control, 2834
—, — *fluorescens* on, respiration changes duced by, 1286, 1744c.
—, — *solanacearum* on, in Bulgaria, 2 Colombia, 1671; effect of, on aroma biosynthesis, 2558; inheritance of resist to, 3563; penetration of, 2594; race of, 1
—, — *syringae* on, effect of, on respirat 1286, 1744c; hypersensitivity to, 1744c, 3
—, — *tabaci* on, breeding against, 3563; trol, 2834; effect of, on respiration, 1 1744c; peroxidase in, 1966; tobacco mo virus-induced resistance to, 3566.
—, *Puccinia substriata* on, in Rhodesia, 89
—, *Pythium aphanidermatum* on, control, 3
— rattle virus, association of, with mitoch dria, 3052.
— — —, in France, 1374u; Netherla 1059.
— — — in soil, 394e, 2586e.
— — —, multiplication of, 3301g.
— — — on aster, 2494.
*— — — on *Gerbera jamesonii*, 1157.
— — — on *Nicotiana clevelandii*, 3301b.
— — — on *N. glutinosa*, 2494.
— — — on oats, 2584g.
— — — on *Plantago*, 1374s, 1804.
— — — on potato, 394e, 2234a, b.
— — — on tobacco, 2494; in *Belgium, 166 Japan, 307; effects of temp. on multiplic tion of, 461; transmission of, 1665.
— — —, particles of in relation to infectio 1456, 2644.
— — —, serological identification of, 1374 1457.
— — —, transmission of, by vectors, 105 1374u.
—, *Rhizopus stolonifer* on, 3565.
— ring spot virus on bean, 2112.
— — — on clover, 3484.
— — — on cowpea, 2112.
*— — — on *Crotalaria spectabilis*, 1803.
— — — on *Phaseolus*, 3562.
— — — on soybean, 2334.
— — — on tobacco, decline of specific infe tivity of, 3562; transmission of, by vecto 3208.
— — — on *Vernonia anthelmintica*, 3054.
— rosette virus on tobacco in Rhodesia, 885.
—, *Sclerotium rolfsii* on, susceptibility t 1810.
—, *Scopulariopsis* on, 3565.
— streak virus in Venezuela, 1381m.
— stunt virus, transmission of, 9b; by *Olpidiu brassicae*, 1061.
—, *Thielaviopsis basicola* on, in New Zealan 892; breeding against, 308; effect of fungicid on, 1285; factors affecting, 978n; genetics 3563; var. react. to, 892, 978n.
—, tomato black ring virus on, purification a serum production, 1193.

bacco], turnip mosaic virus Japanese str. on,
hibition of, by *Chenopodium* sap, 468.
veinal necrosis virus, non-transmission of,
y *Tetranychus urticae*, 70.
— — — on potato, 2359b.
Verticillium alboatrum on, resistance to,
402.
— *dahliae* on, effect of phenolic com-
ounds on, 2606; genetics of, 3564; resistance
o, 3402; var. react. to, 3564.
—, — *tricorpus* on, 2658.
virus diseases, 1381m; in Bulgaria, 2100;
Venezuela, 3306; antiviral factor induced in,
by phytic acid, 1051; identification of, 2586e;
mechanism of resistance to, 3559; results of
nternational community trial on, 306.
lyposporium christensii on *Cymbopogon*
flexuosus, differences between *T. cymbopo-*
gonis and, 2513.
- *ehrenbergii* on sorghum, 3097.
—, physiology of, 2996.
penicillariae on *Panicum miliaceum*, 1462.
matine, sensitivity of fungi to, 2559.
mato (*Lycopersicon esculentum*), *Agrobac-*
terium tumefaciens on, development of,
1304.
-, *Alternaria* on, control, 2344.
-, — *porri* on, factors affecting, 3069.
-, — *solani* on, in Bulgaria, 2836; control,
1401, 2379b, 2836, 3697; resistance to, 3669e;
study on, 1293; systemic fungicides against,
2379b; var. react. to, 638, 3669e.
-, — *tenuis* on, in India, 3218; control, 1294,
3218, 3342; factors affecting, 1294; trans-
mission of, by seed, 1294.
- as indicator for mild strs. of potato spindle
tuber virus, 1232.
-, *Ascochyta hortorum* on, in Netherlands,
1374d.
-, *Aspergillus fumigatus* on, 1302.
- aspermy virus on *Chrysanthemum*, see *Chry-*
santhemum.
- — — on *C. cinerariifolium*, 390k.
- — — on *C. indicum*, 224.
- — — on *Tephrosia vogelii*, 3054.
- — — on tomato, effect of gibberellic acid on,
and symptoms of, 3212.
- — — on *Vernonia anthelmintica*, 3054.
-, beet curly top virus on, in U.S.A., 3214;
auxin content and, 2650; epidemiology of,
3214; recovery from, 893; spread of, 1674;
transmission of, by vectors, 893, 3214; var.
react. to, 893.
- black ring virus in Netherlands, transmission
of, by nematodes, 1059.
- — — — on grapevine, 583b.
- — — — on tobacco, 1193.
- — — — on tomato in India, 633.
- — — — beet ring-spot str., antiserum to,
2586e.
- blossom-end rot, factors affecting, 391a.
- blotchy ripening, tobacco mosaic virus
associated with, 391a.
-, *Botrytis cinerea* on, control, 318.
-, Brazilian tomato yellow band virus on, in
Brazil, electron microscopy of, 1291.
- brown root rot, control, 390t; effect of soil
disinfection on, 897; effect of, on yield, 3571;
factors affecting incidence of, 390d; genetics
of, 3570; *Pyrenochaeta lycopersici* associated
with, 3571.
- bushy stunt virus on cherry, *1620, 2426.
- — — — on *Datura*, 1620.
[Tomato bushy stunt virus] on *D. stramonium*,
2646.
- — — — — on tomato, effect of heat on, 2584b;
non-transmission of, by *Olpidium brassicae*,
2646; serology of, 1620.
—, carnation mottle virus str. on, differenti-
ation of str. on carnation from, 3463.
—, *Cercospora fuligena* on, in Ivory Coast,
morphology and symptoms of, 85.
—, *Chaetomium* on, effect of, on growth in, 898.
—, — *globosum* on, 1302.
—, *Cladosporium fulvum* on, in India, 3218;
U.S.S.R., 2838; breeding against, 391g, 2264;
control, 2379b, 2835, 3218; effect of leaf
exudates on, 637; genetics of, 3570; para-
sitism of, 636, 1298; physiologic races of,
2838; systemic fungicides against, 2379b;
var. react. to, 636, 637, 2835.
—, *Colletotrichum coccodes* on, 3571; inocu-
lation of, 3669f; interaction between host
and, 93; light induced sporulation of, 894;
mechanisms of var. resistance to, 1299.
—, *Corticium solani* on, in Ivory Coast, 2840;
Netherlands, 1374d; Venezuela, 1381f; con-
trol, 318, 1374d; effect of staking on, 1381f;
of, on, 1971; *Fusarium solani* associated with,
2840; var. react. to, 2560; virulence of, 2840.
—, *Corynebacterium michiganense* on, in
*Argentina, 3576; U.S.A., 640; analysis of
factors affecting response to, 3575a; control,
321, 640, 2843; evaluation of resistance to,
2267; factors affecting, 3305f; foliage blight
phase of, 3305f; hypothesis of independent
action of different strs., 3575b; leaf hairs as
infection sites for, 321; local lesion bioassay
for, 2561; seed transmission of, 2843; sur-
vival of, 640; symptoms of, 3305f.
—, cucumber mosaic virus on, 1745i; in
Bulgaria, 2836; breeding against, 2264;
control, 2836; effect of, on yield, 1290.
—, — — — strs. on, effect of, on seed produc-
tion and non-transmission of, by seed, 72.
— damping-off, effect of maxicrop on, 1783.
—, *Deuterophoma tracheiphila* on, effect of,
1883a.
—, *Didymella lycopersici* on, in Scotland,
1746b; control, 318, 3572; leaflet on, 3572.
—, *Diplodina lycopersici* on, syn. of *Ascochyta*
lycopersici, 1303.
— diseases in Bulgaria, 2836; Italy, 1807;
breeding against, 986o; control, 1807, 2836.
—, dyrene residues in, 394a.
—, effect of inhibitor from seed-coat on germi-
nation of *Cochliobolus miyabeanus*, 1406; of
soil micro-organisms on, 1424.
— enation leaf curl in India, caused by tobacco
leaf curl virus str., 3568.
—, *Erwinia ?ananas* on, in U.S.A., production
of grey wall symptoms by, 899, 1678.
—, fungi on, effect on respiration, 751; sensi-
tivity of, to tomatine, 2559.
—, *Fusarium* on, in Brazil, 895; control, 1399.
—, — *oxysporum* on, 1302; resistance mecha-
nism in, 2435.
—, — — f.sp. *batatas* on, effect of, on subse-
quent infection with f.sp. *lycopersici*, 1295.
—, — — f.sp. *lycopersici* on, 3697; in Brazil,
895; India, 3061; U.S.A., 319, 1676, 3215;
breeding against, 2264; control, 2356i, 2835;
effect of methyl bromide on, 1970; of previ-
ous inoculation with other ff.sp. on, 1295; of
repression of polygalacturonase synthesis in,
2839; of rufianic acid on, in relation to Ca

supply, 3666m; of trace elements on, 2265; of, on, 3216; factors affecting, 319; genetics of, 3570; *Meloidogyne incognita* associated with, 3216; physiologic races of, 1676, 3215; polyphenoloxidase activity and production of IAA by, 3666f; symptoms of, 3061; tryptophane content of, 3573; variability of, 895; var. react. to, 638, 2835, 3216.
[Tomato, *Fusarium oxysporum*] ff.sp. *tracheiphilum* and *vasinfectum* on, effect of, on subsequent infection by f.sp. *lycopersici*, 1295.
—, — *roseum* on, in India, 3218; effect of, on growth, 898.
—, — *solani* on, in Ivory Coast, *Corticium solani* associated with, 2840.
— green back control, 391b.
—, grey sterile fungus on, effect of soil disinfection on, 897; interrelationship of, with *Heterodera rostochiensis*, 2842.
— — wall, bacteria producing symptoms of, 899, 1678.
—, growth of, under gnotobiotic conditions, 88.
— malformation, 2,4-D preparations causing, 2269b; hereditary, 2269a.
—, *Oidium* on, in Bulgaria, 2836.
—, *Penicillium notatum* on, 1302.
—, *Phoma alternariacea* and *P. destructiva* on, syn. of *Ascochyta lycopersici*, 1303.
—, *Phomopsis* on, cultural characters and symptoms of, 1301.
—, *Phytophthora* on, in Iran, 3063b; Netherlands, 1374d; determining pathogenicity of, 1292.
—, — *erythroseptica* on, var. react. to, 2560.
—, — *infestans* on, in Bulgaria, 2836; Malawi, 399a; U.S.S.R., 635; biotypes of, 1647; control, 399a, 635, 1398, 1677, 2379b, 2836, 3542; evaluation of fungicides against, 18, 2379b; factors affecting, 635; forecasting duration of incubation period, 3574; fungicide residues on, 2837; sources of infection for, 635.
—, potato spindle tuber virus on, 1232; symptoms and transmission of, 3395.
—, — virus M on, concentration of, 395e.
—, — — X on, effect of antiviral chemicals on, 2108.
—, — — — +tobacco mosaic virus on, effect of antiviral chemicals on, 2108; of, on yield, 630, 1290.
—, *Pseudomonas* ?*marginalis* on, in Scotland, 1746b.
—, — *solanacearum* on, 280, 2358b; in Bulgaria, 2594; *Canada, 2268; breeding against, 2264; control, 2268; nematodes in relation to, 3577; penetration of, 2594; severity of, 2844; transmission of, during clipping, 2845; var. react. to, 2844.
—, *Pyrenochaeta* on, causing corky root, 2947.
—, — *terrestris* on, control, 391e, 394j.
—, *Pythium aphanidermatum* on, in Ivory Coast, morphology and symptoms of, 85.
—, — *myriotylum* on, susceptibility to, 2434.
—, *Rhizopus stolonifer* on, effect of, on growth, 898.
— ring spot virus, composition and properties of, 3569.
— — — —, infectivity of, *in vitro* increase in, 466.
— — — —, inoculation, effect of supplements on, 2102.
— — — — not serologically related to rose mosaic virus, 843.
Tomato ring spot virus] on cowpea, 1771.
— — — — on raspberry, 1622, 2775.
*—, *Sclerotinia sclerotiorum* on, in India, 32
—, *Sclerotium rolfsii* on, physiologic races 1381i; susceptibility to, 1810; var. react. 896.
—, *Septoria lycopersici* on, in Argentina, 19 Bulgaria, 2836; Rumania, 1969; con 1377i, 1968, 1969, 2836; hydrolysis of to tine by, 1300; overwintering of, 19 severity of, 1969; var. react. to, 638.
— spotted wilt virus, infectivity of, *in vi* increase in, 466.
— — — —, inoculation, effect of supplem on, 2102.
— — — — not causing *Hippeastrum* streak Papua and New Guinea, 400.
— — — —, similarity of symptoms of *Amar lis vittata* virus to, 2495.
— — — — vira-cabeça str. on tomato, 3213
—, *Stemphylium botryosum* f.sp. *lycopersici* in Ivory Coast, 85; *U.S.S.R., 3066; con 85, 3217; factors affecting, 85.
—, stolbur virus on, antiserum against, 24 study on, 1745f; symptoms of, and tra mission of, by vectors, 1451.
— storage disorders, factors affecting, 9 1005.
— streak in U.S.S.R., viruses causing, 631.
—, tobacco leaf curl virus on, effect of gibb ellic acid and 2-thiouracil on, 634.
—, — — — — str. on, causing enation le curl, 3568.
—, — mosaic virus on, 3306; in Bulgaria, 104 Lithuania, 2261; U.S.S.R., 631; aggressiv ness of isolates of, 1289; association of fr abnormalities with, 1967; causing inter browning, 391a; control, 391f, 631, 104 2835; effect of antiviral chemicals on, 210 of antiviral principle from, 978e; of s disinfection on, 1675; of, on mineral co centration of leaves, 391a; on proplastic 2110; on yield, 1290; factors affecting, 391 631; genetics of, 3570; var. react. to, 1745 2835, 3567.
—, — — — strs. on, effect of, on yield, 1288.
—, ?— — —, tomato enation mosaic str. o 317.
—, — — — tomato str. on, adaptation of vir to resistant plants, 632; control, 1287.
—, — — — +potato virus X on, in U.S.S.R 631; effect of antiviral chemicals on, 2108; on yield, 630, 1290; var. react. to, 630.
—, *Trichoderma viride* on, 1302; effect of, growth, 898.
—, *Verticillium* on, control, 2356f, 2835; eff of soil disinfection by carbathion on, 6 leaflet on, 1297; susceptibility to, 478; v react. to, 2835.
—, — *alboatrum* on, 3611; in Switzerla 2266; effect of auxins on symptoms of, 28 of methyl bromide on, 1970; of soil ten on, 978h; factors affecting damage to, 39 genetics of, 3570; resistance to, 3666r.
—, — *dahliae* on, breeding against, 320; eff of phenolic compounds on, 2606; genet of, 3570; penetration and distribution 401h.
—, — *nigrescens* on, effect of soil temp. 978h.
— virus diseases in Bulgaria, 2100; Lithuan 2261, 2262; Venezuela, 3306; control, technique for detecting, 2262.

mato], *Xanthomonas vesicatoria* on, in Jamaica, 2958a; control, 2843; differences in virulence of, 642; infection of, 641; seed transmission of, 2843.
ula herbarum on poplar, 333.
coptera aurantii transmitting citrus tristeza virus, 1551, 3113.
citricidus transmitting citrus tristeza virus, 1551, 1878.
imetella extenuata and *T. trogii* on forest trees, 2563.
imetes dickinsii on beech, 2889.
gibbosa on timber, 679.
sanguinea on beech, 2889.
— on timber, 2304.
serialis on timber, 681.
anszchelia discolor on almond, 2759.
pruni-spinosae, distinction of, from *T. pruni-spinosae* var. *discolor*, 1743h.
— — var. *discolor* on stone fruit, 1743h.
punctata in Chile, 82.
apex as soil disinfectant, 17.
rees, *Armillaria mellea* on, in Britain, biological control of, 2564.
-, *Deuterophoma tracheiphila* on, 1883a.
-, diseases of, in British Commonwealth, reference book on, 2270; Taiwan, 2846; conference on, 921; monograph on, 1697.
-, *Fomes pinicola* on, biology of, 1702.
-, fungi on, in Iran, 2114; Turkey, 1994; succession of, 676.
-, *Gloeoporus* on, in Hungary, 904.
-, mycorrhiza of, in U.S.A., effect of nematodes on, 2271c; U.S.S.R., 1001.
-, *Nectria radicicola* on, in Germany, 2272.
-, *Phyllactinia guttata* on, C.M.I. description of, 1035b.
-, *Polystictus* on, in Hungary, 904.
-, *Pythium debaryanum*, *P. irregulare*, *P. paroecandrum*, and *P. ultimum* on, in Germany, 2272.
-, virus diseases of, in Europe, 1043; Germany, review of, 2637.
-, *Xanthochrous* on, in Hungary, 904.
remella albida on wood pulp, 936.
remellales in U.S.S.R., key to, 454.
ribromophenol and in combination against timber blue stain, 3219.
trichloromethylmercapto-6-azauracil, fungistatic activity of, 3690.
richoconis padwickii in air over rice fields, 1865a.
richoderma hamatum in soil, 348a.
- *koningii*, antibiotic from, 1405.
- —, inhibition of, by soil fungistasis, 1432.
- *piluliferum* and *T. polysporum* in soil, 348a.
- *virgatum*, effect of 1-hydroxy-3-methylanthraquinone on conidial formation by, 3592.
- *viride*, antagonism of, to *Armillaria mellea*, 90; *Corticium solani* on rice, 3108; *Polyporus adustus* on timber, 2891; *Poria hypolateritia* on tea, 1962; *Sclerotium rolfsii*, 429; *Trametes sanguinea*, 2304.
- —, antibiotic from, 1405.
- —, autotropism in spores of, 2051.
- —, conidial state of *Hypocrea rufa*, 1603.
- —, effect of atrazine on growth of, 430; of O deficiency on sporulation of, 1173c.
- —, electron micrographs of, 447.
- —, factors affecting growth of, 1173c.
- — in rhizosphere of cotton, 3447.
- — in soil, see Soil.
[*Trichoderma viride*], inhibition of book-damaging fungi by, 3703; of *Coniophora puteana* by, 648; of *Macrophomina phaseoli* by, 2613.
— — on citrus, 2717.
— — on fungi, 3675.
— — on *Lentinus edodes*, 729.
— — on *Liriodendron tulipifera*, associated with butt rot, 1976.
— — on pine, 3230.
— — on timber, 2285.
— — on tomato, 898, 1302.
Trichodermin against *Fusarium* on cucumber, 973.
Trichodorus, incidence of, in relation to virus transmission, 395i.
— transmitting pea early browning virus, 1059; tobacco rattle virus, 1059, 1374u, 2234a, b, 2586e.
— *christiei*, effect of, on *Pseudomonas solanacearum* on tomato, 3577.
— *primitivus* ? transmitting tobacco rattle virus, 1665.
Tricholoma pessundatum, effect of simazine on, 749.
— *saponaceum*, antibiotic from, 1764.
Trichometasphaeria turcica in soil, 3022.
— —, inhibition of, by aureofungin, 3341.
— — on maize, see Maize.
— — on rice, 1113t.
— — on sorghum, 1113l.
Trichosanthes dioica, *Fusarium oxysporum* and *Rhizopus stolonifer* on, in India, symptoms of, 3061.
Trichoscyphella willkommii on larch, 2301.
Trichoseptoria fructigena on apple, 2205.
Trichothecin against *Erysiphe cichoracearum* f.sp. *cucurbitacearum* on cucumber, 387; plant diseases in Hungary, 1404; *Sclerotinia laxa* on sour cherry, 1404; *Sphaerotheca fuliginea* f.sp. *cucurbitacearum* on cucumber, 387; as seed treatment for maize, 3096.
— in combination against *Uncinula necator*, 584.
Trichothecium roseum, effect of, on germ tube growth of *Nectria purtonii*, 49.
— —, factors affecting growth of, 1173c.
— — in soil, 3447.
— —, inhibition of *Gnomonia erythrostoma* on apricot by, 1619; potato virus X ring spot str. by, 470a; radish mosaic virus by, 471.
— — on fruit, 1598.
Trifolium, see Clover.
Trifungol, see Ferbam.
Trigonella, potato virus Y can infect, 1455.
—, tobacco etch virus can infect, 1455.
— *foenum-graecum*, *Erysiphe polygoni* on, 2003.
— —, potato virus A can infect, 1455.
Trimangol against *Phragmidium tuberculatum* on rose, 1164.
Trioxymethylene against *Corticium solani* on potato, 1376b.
Triphenyltin acetate and triphenyltin chloride, toxicology of, on beet, celery and potato, 2042.
Triphenyl-tin hydroxide against *Cercospora beticola*, 3259; *C. gigantea* on citrus, 2960c; endoxerosis and stylar-end rot of lime, 1131.
Tripsacum laxum, *Puccinia polysora* on, biological control of, 152b.
Triscabol, see Ziram.
Trisodium phosphate against sugarcane chlorotic streak virus, 882b.
Triticum, see Wheat.

Triton B–1956, use of, on coffee, 2960d.
1-tritylimidazole, fungicidal activity of, 3332.
Trizone against *Agrobacterium tumefaciens* on cherry, 3504; *Fusarium oxysporum* f.sp. *lycopersici* on tomato, 2356i; as soil disinfectant, 1319, 3504.
Trockenbeize as seed treatment for wheat, 1090.
Tropaeolum, *Acroconidiella tropaeoli* on, C.M.I. description of, 3030.
Tsitral, effect of, on *Fomes tremulae*, 2388.
Tsuga, *Echinodontium tinctorium* on, in Canada and U.S.A., review of, 3245.
— *canadensis*, *Phacidiopycnis pseudotsugae* on, control, 675.
— *heterophylla*, *Coccomyces heterophyllae* on, in U.S.A., 1696.
— —, *Diplodina* on, in Canada, 643e.
Tuber albidum on pine, forming mycorrhiza, 3709.
— *maculatum* on pine, forming mycorrhiza, 3708.
Tubercul[ar]iaceae, key to identification of, 3037.
Tuberculina maxima on *Cronartium ribicola*, 401i, 1690, 2289.
Tulasnellales in U.S.S.R., key to, 454.
Tulip (*Tulipa*), *Botrytis tulipae* on, in U.S.S.R., 3473; effect of chlorpropham on, 1590; review of, 550.
— breaking virus, antiserum against, 2508.
— — — on *Iris*, 2366.
— — — on tulip, symptoms of, 3137.
—, *Fusarium oxysporum* f.sp. *tulipae* on, effect of Hg fungicides on, 844; inhibition of, by α-methylene-butyrolactone, 231; transmission of, by soil, 1165.
—, NEPO viruses on, in Scotland, 3301j.
—, *Penicillium corymbiferum* on, in Germany, 833.
—, production of fungitoxic substance by, 3666s.
*—, *Sclerotinia bulborum* and *Sclerotium tuliparum* on, in U.S.S.R., 3473.
—, tobacco necrosis virus on, in Scotland, 3301j; causing 'Augusta disease' and transmission of, by *Olpidium brassicae*, 1374t.
—, *Typhula idahoensis* on, in U.S.S.R., 3473.
— virus diseases, 390m, 3301j.
Tulipa, see Tulip.
Tunica illyrica, *Uromyces caryophyllinus* on, in Rumania, 1377k.
Tunstallia aculeata on tea, 2655, 3203.
Turf, *Calonectria nivalis* on, in N.S.W., 2032a; ? U.K., factors affecting, 1592.
—, *Corticium fuciforme* on, in U.K., control, 1592.
— damping-off in U.K., factors affecting, 1592.
—, *Fusarium roseum* on, control, 551.
—, *Ophiobolus graminis* on, in U.K., factors affecting, 1592.
— snow mould in Canada, 1593.
Turmeric (*Curcuma longa*), *Taphrina maculans* on, development of, 2801; isolation of, 2232; var. react. to, 870.
Turnip (*Brassica rapa*), *Erysiphe polygoni* on, effect of maxicrop on, 1783.
—, *Gloeosporium concentricum* on, study on, 939.
— mosaic virus, study on, 2574.
— — —, transmission of, by vectors, 983.
— — — on Chinese cabbage, 467.
— — — on horseradish, 941.
— — — on rhubarb, 3294.
— — — Japanese str. on tobacco, 468.
[Turnip], radish enation mosaic virus on, symptoms of, 2309.
— yellow mosaic virus, action of urate on, 6[illegible]
— — — —, inactivation of, by pancreatic rib[illegible] nuclease, 3615.
— — — —, technique for detecting, 1457; [illegible] releasing 28s RNA from, 3049.
— — — — on Chinese cabbage, 1057, 1703.
— — — — necrotic str. on Chinese cabb[illegible] 3614.
— yellows virus, spread of, 2584e.
— — — on ornamentals, 395g.
Tuzet against *Glomerella cingulata* on coff[illegible] 1379f.
— in combination against *Nectria radicicola* and *Thielaviopsis basicola* on cyclame[illegible] 3459c.
Tween 80, effect of, on *Hemileia vastatrix* [illegible] coffee, 1559.
Tylosine, resistance of *Xanthomonas campestris* to, 743.
Tympanis conspersa on fruit, 1598.
Typhula idahoensis in soil, 3409.
— — on tulip, 3473.
— — on wheat, 497a, b, 2680.
— *incarnata* on barley, 2691.
— — on rye, 2661.
— — on wheat, 497a, 2661, 2680.
— *ishikariensis* on rye and wheat, 2661.
Typhulochaeta japonica var. *couchii* on oa[illegible] 3583.

UC 21149, effect of, on *Verticillium alboatrum* on cotton, 2485.
UC 23271, properties and use of, against plan[illegible] diseases, 1401.
Ulmus, see Elm.
UV light causing mutation in *Corticium solani* 1444.
— —, effect of, on actinomycete str. 1952 o[illegible] cotton, 211; *Ascochyta chrysanthemi* o[illegible] *Chrysanthemum* and *A. pisi* on pea, 24[illegible] clover phyllody virus, 3665a; *Erysiph[illegible] graminis* on wheat, 3419; *Fusarium sola[illegible]* ff.sp. *phaseoli* and *pisi*, 2908; *Mycosphaerel[illegible] pinodes* on pea, 24; *Phoma herbarum* va[illegible] *medicaginis* on lucerne, 24; resistance [illegible] barley to *Cochliobolus sativus* and *Pyren[illegible] phora teres*, 2466; sporulation of *Alternar[illegible] solani*, 57; tobacco necrosis virus, 2584a.
— —, use of, in detecting *Pseudomonas phas[illegible] olicola* on bean seed, 3269.
Umbelliferae, *Erysiphe heraclei* on, C.M. description of, 1035b.
Uncinula bicornis on *Acer*, 3731b.
— *salicis* on poplar, 2562d, *e.
— — on *Salix*, 2562d.
Unifume as soil disinfectant, 3595a.
Urea, effect of, on fungi on wood pulp, 936.
—, inhibition of *Venturia inaequalis* by, 219
Uredinales, culture of, 773.
— in Hungary, 2619; the world, study on, 4
— on *Centaurea*, 46b.
—, terminology of, 3031.
Uredo apacheca on *Juniperus deppeana*, 356.
Urocystis agropyri on **Deschampsia caespito[illegible]* and *Phleum alpinum*, 2184.
— — on *Poa pratensis*, 2509, 3477.
— — on wheat, 2445.
— *cepulae* on onion, 980a, 2340, 3649.
— *occulta* on cereals, 3013.
Uromyces alopecuri, see *U. dactylidis*.

romyces] *anthyllidis* on Leguminosae, 237.
appendiculatus in Chile, factors affecting evelopment of, 82.
— on bean, see Bean.
— on *Phaseolus lunatus*, 702, 3272.
—, polysomes in extracts of, 2053.
—, self-inhibition of germination in, 31.
betae on beet, 2585e.
caryophyllinus in Rumania, hosts of, 1377k.
christensenii on *Hordeum bulbosum* and *Muscari parviflorum*, 137.
ciceris-arietini on Leguminosae, 237.
—, self-inhibition and self-stimulation of germination in, 1769e.
dactylidis, nuclei of, 2630.
delphinii on *Delphinium*, 46e.
dianthi on carnation, see Carnation.
durus, nuclei of, 2630.
fabae, see *U. viciae-fabae*.
flectens on clover, 1174.
fulgens and **U. heimerlianus* on Leguminosae, 237.
hordeastri on *Hordeum bulbosum* and *H. murinum*, 137.
loti on Leguminosae, 237.
lupinicola on lupin, 2732.
mysticus on *Hordeum bulbosum*, 137.
nerviphilus on clover, 1174.
punctatus on Leguminosae, 237.
reichertii on *Hordeum bulbosum* and *Scilla hyacinthoides*, 137.
striatus, self-inhibition of germination in, 31.
trifolii on clover, 240, 1174.
trifolii-purpurei on clover, 1809.
trifolii-repentis on clover, 1174.
viciae-craccae on Leguminosae, 237.
viciae-fabae, effect of, on plant respiration, 751.
— on broad bean, see Bean, broad.
viennot-bourginii on barley, *Bellevalia eigii*, and *Hordeum spontaneum*, 137.
rtica dioica, microfungi on, ecology of, 2970a, b.
spulun against *Tilletia* on wheat, 1840.
stilaginales in Baltic, 1036; Hungary, 1437.
, teliospore germination in, 3036.
stilaginoidea virens in air over rice fields, 1865a.
— on rice, 1381c, 1865b.
stilago, effect of radiation on teliospore germination, 97.
affinis on *Stenotaphrum secundatum*, 1168a.
avenae, electron microscopy of, 3739.
—, genetics of, 2631a, b.
—, lyophilization of, 3380.
— on cereals, 3013.
— on oats, see Oats.
esculenta on *Zizania latifolia*, 7214.
hordei, electron microscopy of, 3739.
—, genetics of, 2631a.
— on barley, see Barley.
— on cereals, 3013.
— on oats, see Oats.
maydis, melanins of, 3351.
— on cereals, 3013.
— on maize, see Maize.
nuda, biology of, 484.
— on barley, see Barley.
— on cereals, 3013.
— on wheat, see Wheat.
—, teliospore germination in, 131; self-inhibition of, 31.
— f.sp. *durum* on wheat, 1493.
[*Ustilago*] *scitaminea* on sugarcane, see Sugarcane.
— *striiformis*, inhibition of germination of *Puccinia graminis* by extracts from, 31.
— — on *Agrostis palustris*, 2509.
— — on *Poa pratensis*, see *P. pratensis*.
**— trebouxii* on *Panicum virgatum*, 87.
Ustilgan against *Ustilago nuda* on barley, 2139.
Ustulina deusta on oil palm, 872.
— *vulgaris*, see *U. deusta*.
**Utetheisa pulchella*, *Beauveria* on, in India, 1392.

Vaccinium, *Godronia cassandrae* on, in Canada, pathogenicity of, 2565.
— *angustifolium*, *Botrytis* and *Sclerotinia* on, effect of ferbam and ziram on pollen germination of, 858.
— *ashei* and *V. corymbosum*, *Phytophthora cinnamomi* on, var. react. to, 1207.
Valeriana and *Valerianella*, *Phoma* can infect, 2357d.
Valsa batangae on coconut, 283.
**— ceratophora* on oak, 2414.
— *cincta*, culture medium for, 3715.
— — on cherry laurel, 2502.
— — on peach, 575.
— — on plum, see Plum.
— *leucostoma*, factors affecting pycnidiospore germination of, 3497.
— — on cherry, 856.
— — on peach, 2214.
— *sordida* on poplar, 332, 915.
Vancomycin, resistance of *Xanthomonas campestris* to, 743.
Vanilla, *Fusarium oxysporum* f.sp. *vanillae* on, mode of entry of, 2960f.
—, *Phytophthora* on, in Réunion, 979.
—, *Rhizoctonia* on, forming mycorrhiza, 2960f.
Vapam against damping-off of tobacco, 1381e; *Fusarium oxysporum* f.sp. *lycopersici* on tomato, 1970; nematodes associated with *Sclerotium rolfsii* on *Eleusine coracana*, 1113o; *Verticillium alboatrum* on tomato, 1970.
— as compost disinfectant, 714.
— as soil disinfectant, 694b, 1731b, 2491, 3126, 3127, 3594, 3620.
—, effect of, on *Thielaviopsis basicola* on tobacco, 1285.
— in combination as soil disinfectant, 694b, 2356e, f.
Vegetable marrow (*Cucurbita pepo*), *Alternaria cucumerina* on, 2350.
— —, cucumber mosaic virus on, 1745i; in Germany, 1362.
— —, — — — str. on, identification and physical properties of, 3654.
— —, *Prunus* necrotic ring spot virus can infect, 13771.
Vegetables, diseases of, in India, 2893; book on, 950, 3312; control, 986u, 1375b, 1995, 3303, 3697; problems in production and marketing of, 1375r; tolerance of pesticides by, 2116.
—, *Erwinia carotovora* on, in Iran, 3315.
— storage disorders in India, 1465.
—, virus diseases of, in Germany, 2637.
Veluticeps berkeleyi on pine, *V. fusca* syn. of, 2297.
Venturia cerasi on *Prunus cerasifera* var. *divaricata*, 577.

[*Venturia*] *chlorospora* on *Salix*, 1746d.
— *inaequalis* as test fungus, 3692.
— —, comparison of physiology of, with *Cladosporium*, 2999.
— —, effect of phosphoric acid derivatives on, 1763.
— — on apple, see Apple.
— *nobilis* on *Laurus nobilis*, 2501.
— *pirina* on pear, see Pear.
— *saliciperda* on *Salix*, 336.
— *tremulae* on aspen, 331.
— — on poplar, 1309.
Venturiaceae in N. America, 3033.
Verbascum virus diseases in Czechoslovakia, 1374s.
Vernonia anthelmintica, alfalfa mosaic, cucumber mosaic, tobacco ring spot, and tomato aspermy viruses on, transmission of, by vectors, 3054.
Veronica longifolia, *Puccinia veronicae-longifoliae* on, 2623.
Verticicladiella wageneri on pine, 353, 354.
— — on *Pseudotsuga menziesii*, 354, 2880.
Verticillium alboatrum, decomposition of cellulose by, 2407.
— —, effect of cytokinins and phenols on, 3357; of nutrient media on, 53, 1011; of tannins on, 1775.
— — in soil, 3023.
— —, inhibition of, by *Streptomyces rimosus*, 978d.
— —, nuclear division in, 3743.
— — on apple, 1184.
— — (microsclerotial) on *Chrysanthemum*, 2357k.
— — on cotton, see Cotton.
— — on eggplant, 722, 978h.
— — on elm, 907.
*— — on hop, see Hop.
— — on *Laurus nobilis*, 2501.
— — on lucerne, see Lucerne.
— — on plants, 3402.
— — on potato, see Potato.
— — on stone fruit, 3157.
— — on strawberry, 3511a, b.
— — on tobacco, 3402.
— — on tomato, see Tomato.
— —, oxidative respiratory enzymes from conidia of, 1008.
— —, protein patterns in, 3374.
— —, taxonomy of, 53, 2658.
— —, toxicity of D 735 to, 739.
— — +*Fusarium roseum* or +*Thielaviopsis basicola* on cotton, 528.
— *armoraciae* on horse radish, 941.
— *cinerescens* on carnation, see Carnation.
— *dahliae*, antagonism of soil actinomycetes to, 1140.
— —, decomposition of cellulose by, 2407.
— —, determination of number of nuclei in, 2490.
— —, effect of anabasin and benzthiazolylthioacetic acid on, 1012, 1013; of anabasin and sophocarpin on, 1014; of antibiotics from *Trichoderma* spp. on, 1405; of cellulose and pectins on, 1010; of nutrient media on development of, 53, 1011; of sources of carbohydrate and N on, 34.
— — in cotton debris, 3448.
— — in soil, 40, 1137, 2487.
— —, inhibition of, by *Streptomyces rimosus*, 978d.
— — on *Acer saccharum*, 2276.
[*Verticillium dahliae*] on artichoke, 3297.
— — on cacao, 3059c.
— — ?on *Chrysanthemum*, 2357k.
— — on cotton, see Cotton.
— — on elm, 2276.
— — on groundnut, 3286.
— — on *Hedysarum coronarium*, 1009.
— — on plants, 3402.
— — on potato, 2245, 2246.
— — on stone fruit, 1198.
— — on sunflower, 1222.
— — on tobacco, 2606, 3402, 3564.
— — on tomato, see Tomato.
— —, protein patterns in, 3374.
— —, taxonomy of, 53, 2658.
— — var. *longisporum*, stable diploid, 3041.
*— *foexii* on soybean, 3066.
— *fumosum* on cotton, 3450.
— *malthousei* on mushroom, 1374m.
— *nigrescens*, decomposition of cellulose b 2407.
*— — on cotton, 214.
— — on eggplant, 978h.
— — on potato, 978h, 2246.
— — on tomato, 978h.
— *nubilum* on cotton, 3450.
— — on potato, 2246, 3664d.
— *theobromae* on banana, 2782.
— *tricorpus*, hosts of, 2658.
— — on cotton, 3450.
— —, taxonomy of, 2658.
Vetch (*Vicia*), bean yellow mosaic virus on, Bulgaria, 1460.
—, *Botrytis cinerea* on, in Czechoslovakia, 191
—, *Fusarium oxysporum* on, in N.S.W., 2032
—, *Gibberella zeae* on, in Czechoslovakia, 191
—, pea enation mosaic and pea leaf roll virus on, in U.S.S.R., 693.
—, phycomycete and *Pythium debaryanum* o in N.S.W., 2032f.
*—, *Sclerotinia trifoliorum* on, in U.S.A pathogenicity of, 2590e.
— spotting, effect of light and temp. on ar resemblance of, to *Leptosphaerulina trifol* 238.
**Vetiveria zizanioides*, *Gloeocercospora sorg* on, in India, symptoms of, 594.
Vicia, see Vetch.
— *dasycarpa*, *Erysiphe polygoni* on, 2003.
— *faba*, see Bean, broad.
— *villosa*, *Septoria pisi* on, in Brazil, 1168b.
Victorin, production of, by *Cochliobol victoriae*, 1855.
Vidden D and in combination as soil disinfec ant, 694b.
Vigna catjang, *Phakopsora pachyrhizi* on, 135
— *cylindrica*, plum line pattern virus on, rete tion of infectivity by, 3156.
— *sesquipedalis*, *Fusarium solani* on, 1016.
— *unguiculata*, see Cowpea.
Vinca rosea, ash yellows-type virus can infec 2590i.
Vine, see Grapevine.
Viola adunca, *Phragmidium* on, similarity of, *P. mucronatum*, 91.
Violet (*Viola*), *Erwinia carotovora* can infec 3315.
Virology, methods in, Vol.1...2419.
Viruses, anatomy of, 986g; annotated list names and synonyms of, 2420; books on, 6 2098, 2099; changes in peroxidase isozym patterns induced by, 1744b; chemica against, 1800; chlorophyll and 18 S prote

evels affected by, 978g; classification of, 421; detection of, in plants introduced into J.S.A., 66; effect of supplements on infecivity of, 2102; electron microscopy of, 1046; pidemiology of leafhopper transmitted, 086j; host interactions with, 65; lyophilization of, 2104; nomenclature of, 2101, 2421; eview of, 395b, 1745d; in Scandinavia, 62; n U.S.S.R., 1042, 1795; serological detection of, 1457; sites of synthesis within cells, 086e; structure of filamentous particles of, 1458; translocation of, by dodder, 1448; nematodes, 1059, 1799; vectors, 9b, 67, 1745o, p, 1796, 1798; from leaf sectors, correlated with intracellular inclusions, 1450.
tavax against *Corticium solani* on cotton, 2385, 3452; diseases of cereals, 2385; *Tilletia caries*, *T. foetida*, and *Urocystis agropyri* on wheat and *Ustilago hordei* on oats, 2445; *U. nuda* on barley, 1852; as seed treatment for barley, 133, 1480; cotton, 3452; oats, 1480; wheat, 133, 2445; as soil disinfectant, 3452.
- ineffective against *Entyloma oryzae* and *Tilletia barclayana* on rice, 1539; *Ustilago nuda* on barley and wheat, 2445.
-, toxicity of, to barley, 1852.
- versus ceresan, 2445.
- in combination as seed treatment for barley and oats, 1480.
itex, against *Botrytis cinerea* on grapevine, 3172.
orlex as soil disinfectant, 613, 1731b.
-, effect of, on *Thielaviopsis basicola* on tobacco, 1285.
ú Ag T1 and Vú Ag T2 against *Venturia inaequalis*, 2197.
ulpia myuros, *Puccinia graminis* on, 2660.

Vallflower (*Cheiranthus*), *Erwinia carotovora* can infect, 3315.
Vallrothiella arceuthobii, association of, with *Glomerella cingulata* on *Arceuthobium americanum*, 337.
Valnut (*Juglans*), *Cylindrocladium* on, in U.S.A., resemblance of, to *C. scoparium* on *Liriodendron tulipifera*, 3305g.
- diseases in U.S.S.R., 2856.
-, *Erwinia nigrifluens* and *E. rubrifaciens* on, association of bacteriophages with, 2281.
-, *Fusarium* on, in Chile, 3594.
-, *Gnomonia leptostyla* on, in Austria, 2280; Kashmir, 2759; biological cycle of, 917; control, 2280.
-, mycorrhiza of, factors affecting formation, 3349.
-, *Xanthomonas juglandis* on, in Austria, 2280; control, 918, 2280; infection, spread and symptoms of, 918.
Vatermelon (*Citrullus vulgaris*), *Alternaria* and *Cercospora* on, in U.S.A., 1365.
-, *Colletotrichum lagenarium* on, races of, 717.
—, *Erwinia* on, in U.S.A., 2948.
-, *Fusarium equiseti* on, in Israel, pathogenicity of, 1466.
- mosaic virus on cantaloupe, 715.
- — — on lupin, 3653.
- — — 2 on cantaloupe, 2941.
- — — — on *Chenopodium album* and *C. strictum*, 3652.
- — — — on watermelon, 1363.
-, *Mycosphaerella melonis* on, in U.S.A., 1365.
[Watermelon], *Pseudoperonospora cubensis* on, in S. Africa, control, 969; U.S.A., factors affecting, 1365.
Wax, emulsified, use of, on potato, 607.
Wheat (*Triticum*), *Agropyron* mosaic virus on, in Germany, hosts of, 71.
—, *Alternaria* on, in India, var. react. to, 2670; U.S.S.R., control, 120.
—, — *tenuis* on, 3306; ?causing 'brown neck', 3087; effect of, on germination and yield, 121.
—, — *triticina* on, in India, 122, 793, 2128; *A. tenuis* associated with, 2128; control, 793, 2128; detailed account of, 122; detection and symptoms of, 2128.
—, *Aspergillus* on, ecological study of, 3426.
—, — *flavus* on, factors affecting, 1467.
—, bacterium on, near to *Enterobacter*, *Pectobacterium*, and *Serratia*, 2683.
—, barley stripe mosaic virus on, 3427.
—, — yellow dwarf virus on, in Denmark, 730b; determination of, 95; effect of, on quality and yield, 1079; susceptibility to and symptoms of, 485; tolerance of, 3300c.
— breeding and vars. in Australia, bulletin on, 3412.
—, *Calonectria nivalis* on, in N.Z., 1095; Pacific North-west, 2681; U.S.A., 2680; U.S.S.R., 3423; control, 2680; ecology of, 2681; effect of plant size on, 497b; factors affecting, 2680, 3423; resistance to, 2661; significance of perithecia of, 2681; var. react. to, 497a, 3423.
—, *Cephalosporium gramineum* on, factors affecting, 3424.
—, *Cercosporella herpotrichoides* on, 2357h; in England, 2585f, 2677; Yugoslavia, 1494; aetiology and incidence of, 1494; control, 794, 2678; effect of direct drilling on, 1843; furidazole and thiabendazole on, 1819; temp. on, 783; effect of, on cropping, 2677; inefficacy of stubble burning against, 394h; inoculation with, 119; resistance to, 2586c; susceptibility to, 3421; var. react. to, 1494, 2585f, 2677.
—, *Claviceps purpurea* on, in France, 118; U.S.S.R., 1478.
—, *Cochliobolus lunatus* on, in India, 2132.
—, — *sativus* on, in India, 121, 2132; N.S.W., 1094; U.S.S.R., 120, 496.
—, *Colletotrichum graminicola* not infecting, 3099.
—, *Corticium solani* on, 126.
—, *Corynebacterium tritici* on, in India, source of infection for, 3089.
—, *Curvularia* on, in India, 3083.
—, — *ramosa* on, in N.S.W., 1094.
—, damping-off of, assessing resistance to, 2133; effect of chlorcholinchloride on, 1497; var. react. to, 1497.
—, diseases in Argentina, 2117; Canada, 2662; India, 2663; W. Australia, 3072; Yugoslavia, 2664; control, 1473, 2662, 3072; pipecolic acid content in relation to resistance to, 2158; review of, 100; susceptibility of high yielding vars. to, 2663; symptoms of, 1473 3072.
—, *Drechslera bicolor* on, in India, 3083.
—, effect of *Penicillium purpurogenum* on respiratory enzymes in, 3360.
—, *Erysiphe graminis* on, in Denmark, 499; India, 498; Italy, 117; U.K., 1091, 3300a; Yugoslavia, 1837, 2664; effect of furidazole

and thiabendazole on, 1819; irradiation on, 792; N-nitrosoethylurea and nicosan-3 on, 1836; of UV radiation on establishment of, 3419; effect of, on yield, 1837; factors affecting, 1820, 1837, 3069; folate and shikimate levels in leaves of, 788; genetics of, 1481; overwintering of, 1837; perithecia of, 499; physiologic races of, 117, 1091, 1837; var. react. to, 498, 1837, 3420a, b.
[Wheat] foot rot in India, 2132; N.S.W., 1094.
— frost damage in N.S.W., 100.
—, fungi on, effect of chlorocholinchloride on, 2461; electron microscopy of, 787; in root region, 1096.
—, *Fusarium* on, in India, 3083; U.S.S.R., 120; Yugoslavia, 2664; factors affecting, 120, 1743q.
—, — *culmorum* on, in N.S.W., 1094; effect of chlorocholinchloride on, 1093.
—, — *dimerum* on, in India, 2132.
—, — *oxysporum* on, in U.S.S.R., 496; effect of preceding crops on, 1495.
—, — *roseum* on, in France, effect of preceding crop on, 99.
—, — — f.sp. *cerealis* 'Culmorum' on, sporulation of, 3430.
—, — *scirpi* on, in U.S.S.R., 496.
—, — *semitectum* on, in India, 2132.
—, — *solani* on, effect of preceding crops on, 1495.
—, — *sporotrichioides* on, in U.S.S.R., 496.
—, *Gibberella fujikuroi* var. *subglutinans* on, in India, 2132.
—, — *zeae* on, in N.S.W., 1094; Qd, 123; U.S.S.R., 496; effect of preceding crops on, 1495; effect of, on yield, 495; var. react. to, 123, 495.
—, *Helminthosporium atypicum* and *H. proliferatum* on, description of, 2457.
—, inhibition of tobacco mosaic virus on *Nicotiana glutinosa* by extract of, 464.
*—, *Khuskia oryzae* on, in Hungary, 1846.
—, *Leptosphaeria herpotrichoides* on, in Yugoslavia, 2664.
—, — *nodorum* on, in Switzerland, 3422; U.S.S.R., 1496; W. Australia, 2130; account of, 494; control, 98, 1092, 3422; effect of chlorocholinchloride on, 1093, 2679; of maneb on, 2130; of seed treatment on, 2129; effect of, on yield, 2129, 2458.
—, — *tritici* on, in U.S.S.R., 1496; W. Australia 2130; Yugoslavia, 2664; control, 2130.
—, maize virus on can infect, 150.
— mosaic virus on Gramineae, 232.
— — — on *Poa annua*, 1822.
— — — on wheat in Japan, 1822; effect of soil fumigation on, 3074; electron microscopy of, 486; isolation of infectious RNA of, 487; maintenance of cultures of, by transfer through root washings, 1080; study on, 1795; transmission of, by soil, 3074; by vectors, 486, 1080.
— — —, soil-borne, on wheat, vector transmission from root washings and soil debris, 101.
—, Mucorales on stored, ecology of, 3426.
—, *Ophiobolus graminis* on, in England, 2677; Hungary, 393a; India, 3083; U.S.S.R., 496; Yugoslavia, 2664; control, 794, 2357b; effect of direct drilling on, 1843; of, on yield, 1375e, 2677, 3408; formaldehyde ineffective against, 2584m; inefficacy of stubble burning against, 394h; method for assessing, 2584o; soil infestation with, 1375e; survival of 1098b; technique for studying inhibition of in soil, 125; variation in, 1099b.
[Wheat], *Penicillium* on stored, ecology of 3426.
—, *Periconia circinata* on, C.M.I. descripti of, 3030.
—, *Pseudomonas rubrilineans* not infecting, 80
—, *Puccinia agropyri* on, resistance to, 95.
—, — *graminis* on, in Afghanistan, 307 Bulgaria, 1485; Canada, 108, 3075; Col bia, 1825; Czechoslovakia, 1824; Engla 106; France, 96c; India, 111, 795, 26 Pakistan, 2668; Portugal, 490; Rhodesia, 3 Switzerland, 1484; U.S.A., 3078; U.S.S 1815, 3414; W. Europe, 490; Yugoslav 2664; breeding against, 3414; classificati of, 3413; control, 1399, 2441, 3413; cul of, 2449; differentiation of, 3413; effect dinitro(1-methyl heptyl) phenyl on ure spores of, 785; of sowing time on, 78 effect of, on nuclear constituents, 1828; RNA synthesis, 104, 3666b; electron mi scopy of, 787, 1082; factors affecting, 1 1086; affecting penetration of, 2452; for tion of appressoria by, 103; forms of, 18 genetics of, 107, 1481, 1482, 1483, 2667; resistance to, 2451; germination of ured spores of, 103; hosts of, 3413; identificati of biotypes of, 110; incorporation of ^{32}P nucleic acid fractions, 3666c; infra- spectra of uredospores of different races 109; lomasomes in leaves infected by, 182 measurement of O consumption of, 307 metabolism of, 105, 1083, 1084, 1085, 182 method of inoculation, 1484; mutation f colour in, 489, 2669; nucleoprotein chang in leaf, 1827; occurrence of, 3413; penetr tion by, 2665; physiologic races of, 96c, 1 111, 491, 795, 1485, 1824, 1825, 2668, 307 3079, 3404; premature death caused b 2666; progressive increase in virulence 1483; resistance to, 96d; technique f inoculating, 1445; var. react. to, 491, 78 796, 1826, 2450, 2670, 3078, 3412, 341 3415; virulence of, 2668.
—, — — + *Tilletia contraversa* on, antagonis between, 488.
—, — *recondita* on, in Afghanistan, 307 Canada, 3075; Czechoslovakia, 2454; Indi 111, 795, 2670; Netherlands, 1h; Pakista 3080; Portugal, 493; Rumania, 1377 U.S.S.R., 1815, 3414, 3416; Yugoslavi 2664; breeding against, 1489, 3414; clas fication of, 3413; control, 2441, 341 differentiation of, 3413; effect of furidazo on, 1819; of light on germination of ured spores of, 112; of temp. on longevity uredospores of, 2453; of thiabendazole o 1819; effect of, on yield, 2125, 2670; enzym and protein changes in infected leaves 2673; factors affecting penetration of, 245 forms of, 1815; genetics of, 1481, 1488, 183 1831; hosts of, 3413; lomasomes in leav infected by, 1829; method for rapid clas fication of cultures, 2672; occurrence 3413; physiologic races of, 111, 491, 49 493, 795, 1377a, 2454, 2671, 3079, 3080, 341 spec. react. to, 113, 1486; var. react. to, 1 491, 492, 789, 795, 1486, 1826, 1830, 267 3414, 3415.
—, — — on, *Eudarluca filum* parasitizing, Yugoslavia, 2674.

heat, *Puccinia recondita*] +wheat streak mosaic virus on, effect of, on yield, 2125.
— — *striiformis* on, in Austria, 2030; Denmark, 114; England, 2585b; Europe, 114; Germany, 114; India, 111, 795; Iran, 1835; Rumania, 1377b; U.S.A., 790; U.S.S.R., 815, 3414; Yugoslavia, 2664; breeding against, 1834, 2585a, 3414; classification of, 3413; control, 3413; differences in reaction between first and second leaves in crosses of, 3081; differentiation of, 3413; effect of N-nitrosoethylurea and nicosan-3 on, 1836; effect of, on root systems, 1087; on yield, 116; evaluation of resistance to, 1833; factors affecting susceptibility to, 790; genetics of, 115, 1088, 1089, 1832, 3081; hosts and occurrence of, 3413; overwintering of, 1377b; physiologic races of, 1h, 111, 114, 795, 1835, 2585h, 3300b, 3418; var. react. to, 116, 795, 1088, 1490, 1826, 1832, 3300b, 3414, 3415.
, *Pythium aphanidermatum* on, pathogenicity of, 2442.
—, — *arrhenomanes* on, in Queensland, 127; effect of seed treatment on, 2442.
—, — *debaryanum* on, in Queensland, 127.
—, — *graminicola* on, in India, 2132, 2682.
—, — *myriotylum* on, susceptibility to, 2434.
—, — *paroecandrum* on, in Queensland, 127.
—, *Rhizoctonia* on, in India, 3083.
—, rice hoja blanca virus on, transmission of, by vectors, 3103.
—, *Sclerospora macrospora* on, in India, 3088.
—, *Sclerotinia borealis* on, in U.S.A., 2680.
—, *Sclerotium rolfsii* on, in India, 1845, 2132, 3083; control, 1845; factors affecting, 1845; physiologic races of, 1381i; var. react. to, 1845.
—, *Septoria* on, in U.S.S.R., key for identification of, 1496.
—streak mosaic virus not causing maize kernel red streak disease, 151.
— — — — on *Bromus* and *Festuca*, 3411.
— — — — on Gramineae, 232, 3411.
— — — — on wheat in U.S.S.R., 1474, 2124; Yugoslavia, 2664; effect of, on yield, 2125; purification of, 3410; reservoirs for and transmission of, by vectors, 3411; var. react. to, 2447.
— — — — +*Puccinia recondita* on wheat, 2125.
—striate mosaic virus, multiplication of, in vector, 102, 2123.
— — — — on wheat, properties of, 3073; technique for preparing antiserum, 2448.
— — — — (European) on oats, 3665d.
—stripe mosaic virus in U.S.S.R., hosts of, 3403.
—stunt virus on barley, oats, and rye, 1474.
— — on wheat in U.S.S.R., 1474.
—, *Tilletia* on, control, 128, 1840, 2446; detection of, 128.
—, — *caries* on, in Poland, 3406; control, 1491, 2445, 3406; effect of Cu on, 2127; of light on spore germination of, 1838; of Mn on, 2127.
—, — *contraversa* on, control, 1090, 2357b; effect of medium on spore germination and development of, 2455; factors affecting viability of spores of, 1842; failure of germinated teliospores to bunt wheat, 1492; var. react. to, 1090.
[Wheat, *Tilletia contraversa*] +*Puccinia graminis* on, antagonism between, 488.
—, — *foetida* on, control, 1491, 1839, 2445, 3082; effect of quintozene and quintozene-thiram on, 2134; factors affecting, 791; new race of, 3082; var. react. to, 3082.
—, *Typhula idahoensis* on, in U.S.A., control, 2680; effect of plant size on resistance to, 497b; var. react. to, 497a.
—, — *incarnata* on, 497a; in U.S.A., 2680; control, factors affecting, 2680; resistance to, 2661.
—, — *ishikariensis* on, resistance to, 2661.
—, Uredinales on, control, 3303.
—, *Urocystis agropyri* on, control, 2445.
—, Ustilaginales on, in Germany, 1479.
—, *Ustilago* on, detection of, 128.
—, — *nuda* on, in Bulgaria, 2456; Poland, 3406; U.S.S.R., 2456; Yugoslavia, 2664; control, 133, 2430, 3406; by early sowing, 129; estimating resistance to, 2676; factors affecting, 2456; resistance of, to anaerobic conditions, 483; technique for determining viability of, 2444; for inoculating, 130, 132a, 2443; var. react. to, 2443, 2456, 2675, 3415; vitavax ineffective against, 2445.
—, — — f.sp. *durum* on, proposed as new form for, 1493.
—, *Verticillium* on, resistance to, 478.
— ×*Agropyron intermedium*, *Puccinia recondita* on, transmission of resistance to wheat by translocation, 1489.
— straw, *Cephalosporium gramineum* on, antagonism of, to *Fusarium culmorum* and *Trichoderma*, 401a; *Fusarium* and *Trichoderma* associated with, 3425; spread of, 2460; survival of, 2459, 2460, 3425.
— —, *Cercosporella herpotrichoides* on, survival of, 1844.
— —, *Cochliobolus sativus* on, 124, 3085.
— —, — *spicifer* on, factors affecting, 124.
— —, fungi in compost of, 1006a, b.
— —, *Fusarium* on, factors affecting, 2459.
— —, — *culmorum* on, antagonism of, to *Cephalosporum gramineum* and *Trichoderma*, 401a; factors affecting, 124.
— —, — *roseum* f.sp. *cerealis* 'Culmorum' on, in U.S.A., colonization of, 2131.
— —, *Gibberella zeae* on, factors affecting, 124; recovery of, from 3086.
— —, *Ophiobolus graminis* on, survival of, 1844.
— —, *Penicillium brevicompactum* and *P. steckii* on, factors affecting, 2459.
— —, *Trichoderma* on, antagonism of, to *Cephalosporium gramineum* and *Fusarium culmorum*, 401a; factors affecting, 2459.
White oil in combination ineffective against beet yellows virus on beet, 2901.
Wild cucumber (*Ecballium elaterium*) mosaic virus on pumpkin, 3614.
**Wisteria*, tobacco mosaic virus on, in U.S.A., transmission of, to *Chenopodium*, 1052.
Wood pulp, fungi on, effect on, 935; growth of, 936; succession on, 676.

Xanthomonas albilineans, longevity of, in distilled water, 305.
— — on sugarcane, see Sugarcane.
— *alfalfae* on clover, 1912.
— *campestris*, effect of antibiotics on, 1338.
— — on cabbage, 996, 3622.

[*Xanthomonas campestris*], resistance of, to tylosine and vancomycin, 743.
*— *celebensis* var. *gossypii* on cotton, 534a, b.
— *citri* on citrus, see Citrus.
— *coracanae* on *Eleusine coracana*, 3101.
— *cyamopsidis* on *Cyamopsis psoraloides*, 2012.
— ?*dieffenbachiae* in Canada, intercepted from Fla, 3346.
— *fragariae* on strawberry, 862.
— *juglandis* on walnut, 918, 2280.
— *malvacearum*, effect of phosphoric acid derivatives on, 1763.
— — on cotton, see Cotton.
*— — on *Lochnera pusilla*, 218.
— *manihotis* on cassava, 726.
— *musacearum* on banana and *Ensete ventricosum*, 1389.
— *oryzae*, bacteriophages of, 2713.
— —, control, 3339.
— — on rice, see Rice.
— —, *X. translucens* f.sp. *oryzae* proposed for, 813.
— *oryzicola* on rice, 813, 1548.
— —, *X. translucens* f.sp. *oryzae* proposed for, 813.
— *pelargonii* on *Pelargonium*, *P. graveolens*, and *P. peltatum*, 842.
— *phaseoli*, effect of antibiotics from *Trichoderma* spp. on, 1405.
— — on bean, see Bean.
— — var. *fuscans* on bean, 1724, *1747a, *2915.
— — var. *sojense* on soybean, see Soybean.
— *pruni*, bacteriophage of, 3319.
— — on peach, 3318.
— —, protein patterns of, 3680.
— *rubi-idaei* on raspberry, 3510.
— *sesami* on sesame, 593, 2230.
— *translucens* f.sp. *hordei* on *Agropyron*, 1911.
— — f.sp. *oryzae*, proposed for *X. oryzae* and *X. oryzicola*, 813.
— *vasculorum* on sugarcane, see Sugarcane.
— — on *Thysanolaena maxima*, 3198b.
— *vesicatoria* on *Capsicum*, see *Capsicum*.
— — on tomato, see Tomato.
*— *vitians* on lettuce, 3a.
Xiphinema americanum, associated with cherry rasp leaf disease, 3502.
— — transmitting peach yellow bud mosaic virus, 571; tobacco ringspot virus, 3208.
— *bakeri* associated with *Pseudotsuga menziesii* corky root disease, 2881.
— *diversicaudatum* associated with strawberry latent ring spot virus, 3508.
— — in soil, 68.
— — transmitting *Arabis* mosaic virus, 69, 859, 1059, 1060; carnation ring spot virus, 221; strawberry latent ring spot virus, 1060.
— *index*, technique for inoculating with grapevine fanleaf virus, 2537.
Xylariaceae on fruit, 1598.
Xyleborus transmitting *Ceratocystis fimbriata*, 1470a.
2,4-xylenol against *Agrobacterium tumefaciens* on fruit and *Pseudomonas savastanoi* on olive, 3322.
Xylia xylocarpa, decay resistance of, 677.

Yam (*Dioscorea* spp.), book on, 1371.
— brown spot, symptoms of and virus-like particles in, 3301m.
[Yams], *Colletotrichum gloeosporioides* f.s *alatae* on, effect of $ZnSO_4$ on, 2062.
—, *Glomerella cingulata* on, effect of vitami on, 432.
Yeast, selective culture of, 2087a.
Yew (*Taxus baccata*), *Phacidium taxicolum* o in Canada, pathogenicity of, 2884.

Zea mays, see Maize.
Zerlate versus makrolin, 2983.
Zinc deficiency associated with citrus decli 199.
— — in rice, 1113u.
—, effect of, on *Corynebacterium sepedonicu* 4b; *Helminthosporium*, 2063; resistance cotton to *Verticillium*, 212.
— in combination against *Cochliobolus sati* and *Erysiphe graminis* on barley, 184 *Phytophthora infestans* on potato, 3 *Puccinia allii* on chives, 3668c; *P. hord Pyrenophora teres*, and *Rhyncosporium sec* on barley, 1849; as soil disinfectant, 3093.
— — —, effect of, on maize dwarf mos virus on maize, 3093; on yield of *Myc sphaerella arachidis*-infected groundnut, 3
— chloride, against strawberry crinkle virus c strawberry, 265.
— methiram against *Septoria lycopersici*, 1377 *Uromyces dianthi*, 397f.
— metiram ineffective against *Phytophtho infestans* on potato, 3e.
— nitrate, effect of, on *Leptosphaeria salvin* 1545.
— sulphate against fungi on cucumber, 258 strawberry crinkle virus on strawberry, 26
— —, effect of, on *Fusarium oxysporum* f.s *lycopersici*, 319; on. *F. o.* f.sp. *vasinfectu* 2726; on *Leptosphaeria salvinii*, 1545; on ri khaira disease, 3111.
— sulphide against *Sphacelotheca reiliana* an *Ustilago maydis* on maize, 3434.
Zincotox against *Peronospora tabacina*, 31 1280.
Zineb against *Alternaria* on tomato, 2344 *Botrytis* on *Vaccinium angustifolium*, 858 *B. cinerea* on grapevine, 3173; on persimmon 2786; *Cercospora beticola*, 1341; *C. gigante* on citrus, 2960c; *Coniella diplodiella* o grapevine, 1935; *Cycloconium oleaginum* 2788; *Cylindrosporium maculans* on mu berry, 163o; *Dibotryon morbosum* on plum 573; *Elsinoe ampelina* on grapevine, 317 *E. veneta* on raspberry, 1377n; *Fusarium o* grapevine, 3173; *Gnomonia leptostyla* o walnut, 2280; *Helminthosporium hevea* 1256; *Mycosphaerella berkeleyi* on ground nut, 3285; *M. fragariae* on strawberry 2781; *Myrothecium roridum* on *Hypocyr glabra*, 227; *Peronospora destructor* o onion, 1357; *P. parasitica* on cabbage, 361 *P. tabacina*, 311, 624, 1279, 2256, 225 *Pestalotiopsis palmarum* on coconut, 352 *Phomopsis diospyri* on persimmon, 278 *Phytophthora* on *Hevea* rubber, 1258; *infestans* on potato, 607, 1235a, 1396, 139 on tomato, 1398, 1677; *Plasmopara viticol* 1396, 1398, 2379a; *Polystigma rubrum* o plum, 1200; *Puccinia pringsheimiana* o gooseberry, 1927; *Rhacodiella vitis* on grap vine, 1934; *Rhizoctonia* on grapevine, 317 *Sclerotinia* on *Vaccinium angustifolium*, 858 *Septoria lycopersici*, 1377i, 1968; *S. ribis* o

ooseberry, 2772; *Stagonospora curtisii* on *larcissus*, 390f; *Trichometasphaeria turcica* n maize, 1113a; *Uromyces dianthi*, 397f; *Venturia inaequalis*, 1396, 1398; *Xanthomonas juglandis*, 2280; as seed treatment for pple, 1377m; wheat, 2357b; as treatment or onion bulbs, 2339.
neb] constituent of blitane new, 1236.
ineffective against *Puccinia coronata*, 2469.
methods for determining moisture content of, 3334.
persistence, properties, and retention of leposits of, 390s.
residues in crops, 393d.
in combination against bacterial spotting of nushroom, 3662; *Botrytis cinerea* on *Chrysanthemum*, 390e; on grapevine, 1743i; *Cercospora* on grapevine, 274; *C. citrirrisea* on citrus, 2960c; *Fabraea maculata* on pear and quince, 3495; *Fusarium roseum* and *F. solani* on cantaloupe, 2582; *Itersonilia perplexans* on *Chrysanthemum*, 390e; *Nectria radicicola* on cyclamen, 3459c; *Peronospora destructor* on onion, 965; *Plasmopara viticola*, 1743i, 2791, 2792; *Thielaviopsis basicola* on cyclamen, 3459c; *Uncinula necator*, 274, 1743i.
——, use of, on currant, potato, and tomato, 19.
50W against damping-off of pine and spruce, versus captan 50W and thiram SF-75, 341.
[Zineb] 80 against *Phytophthora infestans* on tomato, 2837.
Zinebtan against *Peronospora tabacina*, 310, 1280.
Zingiber officinalis, see Ginger.
**Zinnia*, *Mycosphaerella ligulicola* on, 1154.
—, *Pseudomonas solanacearum* on, 280.
—, tobacco etch virus on, nuclear crystals in, 2423.
Ziram against *Deuterophoma tracheiphila*, 1883b; *Elsinoe ampelina* on grapevine, 1634, 3171; *Fusarium roseum* and *F. solani* on cantaloupe, 2582; *Fusicoccum amygdali* on almond, 854; *Leptosphaeria salvinii* on rice, 3336; *Puccinia pringsheimiana* on gooseberry, 1927.
—, effect of, on pollen germination of *Vaccinium angustifolium*, 858.
—, methods for determining moisture content of, 3334.
— in combination against *Cercospora* on grapevine, 274; *Plasmopara viticola*, 2792; *Uncinula necator*, 274.
Zizania latifolia, *Ustilago esculenta* on, in U.S.S.R., symptoms of, 7214.
Zizyphus jujuba, *Glomerella cingulata* on, symptoms of, 3170.
Zonites algirus, inhibitor of TMV from, 1275.
**Zoysia*, *Puccinia zoysiae* on, in U.S.A., 554.
*— *japonica*, *Puccinia zoysiae* on, in Hawaii, *1067; U.S.A., 236.